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EOSDIS Core System Project

ECS Science Acceptance Test Report for Release 5B

Final

September 2000

Raytheon Company
Upper Marlboro, Maryland

ECS Science Acceptance Test Report for Release 5B

Final

September 2000

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Preface

This document is a contract deliverable with an approval code 2. As such, it does not require formal Government approval, however, the Government reserves the right to request changes within 45 days of the initial submittal. Once approved, contractor changes to this document are handled in accordance with Class I and Class II change control requirements described in the EOS Configuration Management Plan, and changes to this document shall be made by document change notice (DCN) or by complete revision.

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Abstract

The ECS Science Acceptance Test Report document contains information on the results of the specific tests executed to verify that Release 5B satisfies the functional components, error conditions, and performance constraints delivered with that release.

Keywords: Acceptance test, Release 5B, NCR, functional component, error condition, performance constraint, report, AT.

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1. Introduction

1.1 Identification

This Acceptance Test Report, Contract Data Requirement List (CDRL) item 071, whose requirements are specified in Data Item Description (DID) 412/VE2, is a required deliverable under the Earth Observing System Data and Information System (EOSDIS) Core System (ECS) Contract NAS5-60000.

The ECS Science Acceptance Test Report document contains the results of the tests executed to verify that Release 5B satisfies the functional components, error conditions, and performance constraints delivered with this Release.

1.2 Scope

Release 5B includes the functional capabilities and services to provide Terra (AM-1) and Landsat-7 enhanced post-launch capabilities. Release 5B also contains the software to support all external operational interfaces and the associated EOS Mission Integration Testing and Ground System Integration Testing that is performed for Aqua (PM-1).

Release 5B was acceptance tested at the Verification and Acceptance Test Center (VATC) and Performance Verification Center (PVC) subsequent to the launch of the Terra (AM-1) and Landsat-7 instruments, but prior to the launch of the Aqua (PM-1) instruments. This schedule is intended to support the EOS Ground System (EGS) Integration and Mission Integration activities defined in the Earth Science Data & Information System Master Schedule.

This document contains the results of the Test Engineering (TE) organization's formal Acceptance Tests as well as the Performance and Load Tests as of the Release 5B Consent to Ship Review (CSR) held on May 11, 2000 plus post-CSR updates. For the formal Acceptance Tests, the results include the number of functional components, error conditions, and performance constraints tested, not tested, verified, and not verified for each test case executed. For the Performance and Load Tests, test results as measured against the 24-hour workload specifications for the GSFC and EDC Distributed Active Archive Centers (DAACs) are provided. The number of Nonconformance Reports (NCRs) opened and closed during testing is also included in this document.

1.3 Purpose

The purpose of the ECS Science Acceptance Test Report for Release 5B is to detail the results of the tests used to formally verify that Release 5B meets all specified functional components, error conditions, and performance constraints.

1.4 Status and Schedule

The submittal of DID 412/VE2 meets the milestone specified in the Contract Data Requirements List (CDRL) for ECS Science Acceptance Test Report of NASA contract NAS5-60000. The submittal schedule is 15 days after the Consent to Ship Review (CSR) for the preliminary version, and 15 days after the last Site Readiness Assessment (SRA) for the final version.

1.5 Organization

This document is organized in 3 sections. The content of each section is described below.

Section 1: Introduction - Provides information regarding the identification, scope, purpose, status and schedule, and organization of this document.

Section 2: Related Documentation - Provides a listing of parent documents, applicable documents, and documents that are used as source information.

Section 3: Formal Acceptance Test Results - Provides the results of acceptance testing that took place in the VATC, PVC, and at the DAACs, as applicable.

Appendix A, Release 5B Acceptance Test Schedule - Provides a printout of the final Release 5B Acceptance Test schedule.

Appendix B, Verification Database (VDB) Release 5B Test Results - Provides ECS verification status and related information for Release 5B criteria.

Appendix C, Release 5B Performance and Load Tests - Contains the results associated with the performance and load tests conducted in the PVC for the GSFC and EDC DAACs for Release 5B.

2. Related Documentation

2.1 Parent Documents

The parent documents are the documents from which the scope and content of this document are derived.

194-401-VE1	Verification Plan for the ECS Project, Final
409-CD-510	ECS Overall System Acceptance Test Plan for Release 5B
420-05-03	Earth Observing System (EOS) Performance Assurance Requirements for EOSDIS Core System (ECS)
423-41-01	Goddard Space Flight Center, EOSDIS Core System (ECS) Statement of Work
423-41-02	Goddard Space Flight Center, Functional and Performance Requirements Specification for the Earth Observing System Data and Information System (EOSDIS) Core System (ECS)
423-41-03	Goddard Space Flight Center, EOSDIS Core System Contract Data Requirements Document

<http://ecsv.gsfc.nasa.gov/> ECS Verification Database (VDB) Web Site

http://dmserver.gsfc.nasa.gov/relb_it/5b.html 5B Test Procedures

2.2 Applicable Documents

The following documents are referenced within this Test Procedures document, or are directly applicable, or contain policies or other directive matters that are binding upon the content of this document.

107-CD-002	Level 1 Master Schedule for the ECS Project (published monthly)
209-CD-002	External Interface Control Document Between EOSDIS Core System (ECS) and ASTER Ground Data System
209-CD-013	External Interface Control Document Between EOSDIS Core System (ECS) and Landsat 7 System
305-CD-030	Release-B GSFC DAAC Design Specification
305-CD-031	Release-B LaRC DAAC Design Specification
305-CD-033	Release-B EDC DAAC Design Specification

334-CD-510	5B Science System Release Plan for the ECS Project
535-PAI	Acceptance Data Package
605-CD-002	Release B SDPS/CSMS Operations Scenarios for the ECS Project
607-CD-001	ECS Maintenance and Operations Position Description
714-PP3	CSR Presentation Package
220-TP-001	Operations Scenarios-ECS Drop 4P/4P1 & L7-NCR P1 Impacts
212-WP-002	Game Plan for the ECS Project
TT-1-001	Acceptance Test Preparation, Execution and Documentation
505-41-11	Goddard Space Flight Center, Interface Requirements Document Between EOSDIS Core System (ECS) and the Version 0 System
505-41-12	Goddard Space Flight Center, Interface Requirements Document Between EOSDIS Core System (ECS) and Science Computing Facilities
505-41-15	Goddard Space Flight Center, Interface Requirements Document Between EOSDIS the AM project for AM-1 Flight Operations
505-41-17	Goddard Space Flight Center, Interface Requirements Document Between EOSDIS Core System (ECS) and the NASA Science Internet (NSI)
505-41-18	Goddard Space Flight Center, Interface Requirements Document Between EOSDIS and MITI ASTER GDS Project
505-41-19	Goddard Space Flight Center, Interface Requirements Document Between the EOSDIS Core System (ECS) and the National Oceanic and Atmospheric Administration (NOAA) Affiliated Data Center (ADC)
505-41-21	Goddard Space Flight Center, Interface Requirements Document Between EOSDIS Core System (ECS) and NASA Institutional Support Systems (NISS)
505-41-32	Goddard Space Flight Center, Interface Requirements Document Between Earth Observing System Data and Information System, and the Landsat 7 System
505-41-33	Goddard Space Flight Center, Interface Requirements Document Between the EOSDIS Core System (ECS) and Science Computing Facilities (SCF)

505-41-36	Goddard Space Flight Center, Interface Control Document Between the EOSDIS Core System (ECS) and the National Oceanic and Atmospheric Administration (NOAA) for the ECS Project
505-41-39	Goddard Space Flight Center, Interface Control Document Between the EOSDIS Core System (ECS) and the Langley Research Center (LaRC) Distributed Active Archive Center (DAAC) for the ECS Project
505-41-40	Goddard Space Flight Center, Interface Control Document Between the EOSDIS Core System (ECS) the Goddard Space Flight Center (GSFC) Distributed Active Archive Center (DAAC) for the ECS Project
505-41-47	Goddard Space Flight Center, Interface Control Document Between the EOSDIS Core System (ECS) and the Stratospheric Aerosol and Gas Experiment (SAGE III) Mission Operations Center (MOC)
510-ICD-EDOS/EGS	Earth Observing System (EOS) Data and Operations System (EDOS) Interface Control Document Between the Earth Observing System (EOS) Data and Operations System (EDOS) and the EOS Ground System (EGS) Elements
522-FDD-96/010R0UD0	Goddard Space Flight Center, Earth Observing System (EOS AM-1 Flight Dynamics Division (FDD)/EOSDIS Core System (ECS) Interface Control Document
560-EDOS-0211.0001	Interface Requirements Document (IRD) Between the Earth Observing System (EOS) Data and Operations System (EDOS), and the EOS Ground System (EGS) Elements

2.3 Information Documents

The following documents, although not referenced herein and/or not directly applicable, do amplify or clarify the information presented in this document, but are not binding on the content of this ECS Science Acceptance Test Report document.

224-CD-001	Release B Release Plan for the ECS Project
410-TP-004	Release B Replan Functionality by Phase for the ECS Project
222-WP-004	Release B Replan for the ECS Project

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3. Formal Acceptance Test Results

This section contains results for the ECS Release 5B formal acceptance tests, held from January, 2000 to May, 2000 in the VATC and PVC. Results reported in this document represent status as of the CSR conducted on May 11, 2000 plus any additional verification status obtained since then. Appendix A contains VATC test schedules. Appendix B contains criteria verification information, and Appendix C contains results of performance tests conducted in the PVC.

3.1 ECS Acceptance Test Program Context

The acceptance test program for Release 5B was conducted at two centers: VATC and PVC. VATC testing focused on verifying functional components (FC) and error conditions (EC) specified in 5B Tickets. Performance constraints (PC) for Release 5B were verified primarily in the PVC, although one PC was verified in the VATC.

Acceptance test cases were developed to verify Release 5B FCs and ECs in the VATC. These test cases underwent internal peer and ESDIS reviews prior to ESDIS approval. All approved Release 5B acceptance test cases are posted on the Web at http://dmsserver.gsfc.nasa.gov/relb_it/5b.html, 5B Test Procedures. "As-run" test cases, which highlight "redline" changes resulting from test execution, are posted to the same Web site. The acceptance test cases developed and approved for Release 5B are shown in Table 3-1.

Because of the size and complexity of Release 5B, the functionality was delivered by the Development organization to TE in three phases or turnovers (referred to as Turnover-1, Turnover-2, and Turnover-3). Turnovers 2 and 3 contained some NCR fixes as well as new functionality. Following installation and checkout of each turnover in the VATC, regression tests were run and NCRs identified on existing functionality. A Test Readiness Review (TRR) was presented to the ECS Project Manager for each of the three turnovers on December 21, 1999, March 6, 2000, and April 6, 2000, respectively. Each TRR included the status of Development integration tests, regression testing, NCRs, acceptance test procedure development, and VATC configuration. The TRRs demonstrated the readiness of the software and TE personnel to proceed with formal acceptance testing in the VATC for the applicable turnover.

Release 5B formal acceptance testing in the VATC was conducted during the period indicated in the Test Schedule presented in Appendix A. For each test conducted, a Test Execution Form (TEF) was completed, detailing significant items associated with each test, deviations made to procedures, and NCRs existing, written, or verified. A hard copy of the step-by-step test procedure was annotated, to indicate the disposition of each step. Following the conduct of each test, the tester and witness determined the status of assigned criteria (i.e. verified (passed), verified with workarounds, not verified (failed), or not tested) and indicated the status of each criterion on the Criteria Verification Log. This log was used for updating the Verification Database (VDB) with criteria verification status. Appendix B details the verification status for Release 5B criteria.

Unlike acceptance testing in the VATC, where the focus was on verifying functionality and error processing, PVC testing emphasized performance and load testing to emulate DAAC conditions. Appendix C details the results of this performance and load testing in the PVC. A set of test procedures, which were not intended to undergo a rigorous review and approval process, was developed for the PVC. Several PCs were statused and documented on ECS Verification Reports (EVRs), which are used to update the VDB when verification is accomplished outside the normal acceptance testing program.

Table 3-1. Release 5B Acceptance Tests

Test Number	Test Name
5B08010	Maintenance Tool Management (ASTER)
5B08020	User Profile Enhancements
5B08030	SDSRV Recovery and Queuing Enhancements
5B08040	Update ESDT
5B08050	Landsat-7 Error Handling
5B08060	Generate Reports Using IQ/SQR Tools
5B08070	User Profile Replication - 5B
5B09010	Closest Granule and Minimum/Maximum Granule Production Rule
5B09020	Spatial Pad Production Rule
5B09030	Orbit Processing Runtime Parameters Production Rule
5B09040	Orbit DPREP Processing for PM-1
5B09050	Ingest Cancel
5B09060	Ingest Database Data Type Verification
5B09070	Ingest Auto-Suspend/Cancel/Resume
5B09100	Thread-safe Version of SDP Toolkit
5B09110	C++ Version of SDP Toolkit
5B09120	Toolkit Support for PM-1
5B10010	LLBox
5B10015	Oriented Polygon
5B10020	Persistent Queuing of Subscription Actions
5B10030	V0-ECS Gateway (Integrated Browse and Enhancements)
5B10040	ASTER Gateway
5B10050	Restricted Granule Access
5B10060	Landsat-7 Floating Scene Subsetting
5B10070*	JAVA DAR Tool Additional Functionality*
5B10090	Configuration Registry
5B12010	ASTER On-Demand (ASTER L1B)
5B12020	ASTER On-Demand Digital Elevation Model (DEM)
5B12030	ASTER On-Demand Higher-Level Products
5B12040	ASTER Browse

* Test procedure approved by ESDIS but not executed in the VATC; associated criteria intended for EDC or ASTER Science Team verification

3.2 Release 5B Formal Test Results

Results reported in this document represent status as of the CSR conducted on May 11, 2000 plus any additional verification status obtained since then.

The approach taken for Acceptance testing ECS Release 5B software has emphasized the verification of criteria, i.e., functional components, error conditions, and performance constraints. ECS Project Management and ESDIS have concurred that an overall "pass/fail" assessment by test case is not relevant, and thus it is not included in this document or in the VDB. Instead, for each test case, the number of criteria verified, not verified, and not tested is included.

The detailed results of each test case are maintained in a Test Execution Folder. These folders contain the test procedures with any redlines noted during the test, test artifacts collected during the test execution, TEFs, a copy of Criteria Verification Logs, Tickets, NCR's associated with the test, and any other general comments on the test. Reasons for not fulfilling certain test objectives are recorded on the TEFs, and NCRs associated with criteria are noted on the Criteria Verification Log and tracked in the VDB. Test folders are maintained under configuration control by the ECS Configuration Management organization. The VDB is maintained on the Web (<http://ecsv.gsfc.nasa.gov/>) where it may be accessed to obtain current information regarding criteria verification status.

All of the Release 5B acceptance test results are condensed in tabular form in the VDB, which was maintained through the testing phase. It details the test results status for each of the statused FC, EC, and PC criteria. A Release 5B test report generated from the final Verification Database (as downloaded on 5/25/00) is presented in Appendix B. In the following sections, references will be made to functional, error and performance criteria and their criteria keys. The mapping of these keys to criteria and their description may also be found in the VDB.

A summary of the test verification approach was addressed in the Presentation Package of the Consent to Ship Review (CSR) held May 11, 2000 (DID 714).

3.3 Criteria Status Summary

A total of 273 criteria have been allocated to Release 5B. In terms of criteria type, 208 (76.2%) are Functional Components, 56 (20.5%) are Error Conditions, and 9 (3.3%) are Performance Constraints.

Initially, all 273 criteria were to be tested in the VATC and PVC. 265 criteria were intended for VATC verification and 8 for the PVC. All criteria initially intended for VATC verification were mapped to acceptance test cases in the VDB. After this mapping was accomplished and the associated test cases were approved, however, ECS Project Management and ESDIS decided that 13 criteria should be verified at EDC or by the ASTER Science Team. These included 12 criteria associated with the Java DAR Tool and one LPDS criterion. None of these 13 criteria have been statused yet. E-mail messages and accompanying ECS Verification Reports (EVRs) have been sent to EDC and the ASTER Science Team notifying them that these 13 criteria are intended for verification by them rather than in the VATC or PVC. As a result, 253 criteria are intended for verification in the VATC and 7 in the PVC.

3.4 Verification and Acceptance Test Center (VATC) Criteria Status

In the VATC, 244 out of the 253 criteria (96.4%) were statused as Verified (V); this includes six criteria with a status of Verified with Workaround (VW). Seven criteria (2.8%) were statused as Not Verified (NV), and the remaining two criteria (0.8%) were Not Tested (NT). The VATC Criteria results are shown in Table 3-2. Error Conditions are indicated by a single asterisk next to the applicable criteria keys, and the sole Performance Constraint has a double asterisk. Functional Components have no special character next to the criteria keys.

Out of the 197 Functional Components intended for VATC verification during the Release 5B Acceptance Testing period, 190 (96.5%) were verified (V), 5 (2.5%) Not Verified (NV), and 2 (1.0%) Not Tested (NT). Note that the verified criteria count includes 6 that were statused as Verified with Workaround (VW).

Out of the 55 Error Conditions intended for VATC verification during the Release 5B Acceptance Testing period, 53 (96.4%) were verified (V), and 2 (3.6%) were not verified (NV).

One Release 5B Performance Constraint was intended for VATC verification, and it was verified (V) (100.0%).

Due to higher ECS priorities, contention for resources, and unresolved NCRs, the seven NV and two NT criteria intended for VATC verification have not yet been verified. A plan for resolving the NCRs and verifying these nine criteria, as well as the six VW criteria, is being formulated but is not yet complete.

3.5 Performance Verification Center (PVC) Criteria Status

In the PVC, three out of the seven criteria (42.9%) were statused as Verified (V), and four criteria (57.1%) were statused as Not Tested (NT). The PVC Criteria results are shown in Table 3-3. All of the seven PVC Criteria were Performance Constraints, which are indicated by a double asterisk next to the criteria keys.

The four NT criteria intended for PVC verification have not yet been verified. Pending ESDIS concurrence, however, Criteria Key 1776 will be statused as "V" without the need for further testing, and Criteria Key 1777 will be initially statused as "NV". (Note that the status for Criteria Key 1777 might change pending the outcome of Release 6A testing for a similar criterion.) The remaining two criteria are scheduled for verification in Release 6A.

Table 3-2. Release 5B VATC Criteria Verification Status Summary (1 of 2)

Test Case	Ticket	Criteria Key										Total	V	NT	NV
5B08010 - Maintenance Tool Management (ASTER)	RM_5B_07 - M-Tool Enhancements	1539	1540	1541	1542	1543	1544	1545	1546			8	8		
5B08020 - User Profile Enhancements	RM_5B_11 - MSS User Profile Enhancements	1433	1434	1435*	1436*							4	4		
5B08030 - SDSRV Recovery and Queuing Enhancements	RM_5B_12 - SDSRV Recovery & Queuing Enhancements	1478	1479	1480								3	3		
5B08040 - Update ESDT	RM_5B_13 - Update ESDT	1496	1498	1499	1500*	1501*	1502*	1503*	1506*	1507*	1508*	12	12		
5B08060 - Generate Reports Using IQ/SQR Tools	EN_5B_01 - Generate Reports using IQ/SQR	1504*	1505*												
5B08070 - User Profile Replication - 5B	RM_5B_15 - User Profile Replication	1643	1644	1645	1646	1647	1648	1649	1650	1651	1652	10	10		
5B09010 - Closest Granule and Minimum/Maximum Granule Production Rule	RH_5B_03 - Closest Granule Production Rules	1783	1784	1785	1786	1787*	1788*	1789*	1790*	1791*	1792*	12	12		
5B09020 - Spatial Pad Production Rule	RH_5B_04 - Spatial Pad Production Rules	1793*	1794*												
5B09030 - Orbit Processing Runtime Parameters Production Rule	RH_5B_05 - Orbit Processing Runtime Parameters Production Rules	1379	1380	1381	1382	1383	1384	1385*	1386*			8	8		
5B09040 - Orbit DPREP Processing for PM-1	RH_5B_06 - DPREP Processing for PM-1	1416	1417	1418	1419	1420	1421	1422*				7	7		
5B09050 - Ingest Cancel	SM_5B_01 - Ingest Operability and New Data Types	1569	1570	1571	1572	1573	1574	1575	1576	1577	1578	11	11		
5B09060 - Ingest Database Data Type Verification	SM_5B_01 - Ingest Operability and New Data Types	1579													
5B09070 - Ingest Auto-Suspend/Cancel/Resume	SM_5B_01 - Ingest Operability and New Data Types	1615	1616	1621*								3	3		
5B09100 - Thread-safe Version of SDP Toolkit	RH_5B_01 - Processing Toolkit Upgrades to Support Concurrency	1627	1628									2	2		
5B09110 - C++ Version of SDP Toolkit	RH_5B_02 - C++ SDP Toolkit	1625										1	1		
5B09120 - Toolkit Support for PM-1	RH_5B_07 - SDP Toolkit Support for EOS PM-1 (Aqua)	1629	1630	1631	1632							4	4		
5B10010 - LLBox	RM_5B_01 - LLBox and Oriented Polygon	1425	1426	1427	1428	1429	1430	1431	1432			8	8		
5B10015 - Oriented Polygon	RM_5B_01 - LLBox and Oriented Polygon	1437	1438	1439	1440	1441	1442	1443	1444	1445	1446	12	12		
5B10050 - Restricted Granule Access	RM_5B_10 - Restricted Granule Access	1447	1448												
5B10090 - Configuration Registry	HA_5B_01 - Configuration Registry	1833	1834	1835								3	3		
5B12010 - ASTER On-Demand (ASTER L1B)	RM_5B_03 - On-Demand ASTER L1B and ECS-GDS Gateway	1481	1482	1488	1489	1490						5	5		
5B12020 - ASTER On-Demand Digital Elevation Model (DEM)	RM_5B_04 - On-Demand ASTER DEM	1483	1484	1485	1486	1487						5	5		
5B12040 - ASTER Browse	RM_5B_14 - ASTER Browse	1387	1388	1389	1390	1391	1392	1393	1394	1395	1396	17	17		
		1397	1398	1399	1400*	1401*	1402*	1403*							
		1670	1671	1672	1673	1674	1675	1676	1677	1858		9	9		
		1653	1654	1655	1656	1657	1658	1659	1660	1661	1662	16	16		
		1663	1664	1665*	1666*	1667*	1669*								
		1580	1581	1582	1583	1584	1585*	1586*	1587**			8	8		
		1678	1679	1680	1681	1682*	1683*					6	6		

Table 3-2. Release 5B VATC Criteria Verification Status Summary (2 of 2)

Test Case	Ticket	Criteria Key										Total	V	NT	NV
5B10020 - Persistent Queuing of Subscription Actions	RM_5B_02 - Persistent Queuing of Subscription Actions	1371	1372	1373	1375	1376	1377	1378	1374			8	7		1
5B10040 - ASTER Gateway	RM_5B_09 - GDS-to-ECS Gateway	1547	1548	1549	1550	1551	1553	1554	1555	1556	1557	20	18		2
		1558	1559	1560	1562*	1563*	1565*	1566*	1567*	1552	1561*				
5B10060 - Landsat-7 Floating Scene Subsetting	SM_5B_02 - Landsat-7 Floating Scene Subsetting	1462	1465	1466	1468	1473*	1474*	1475*	1476*	1463	1469	11	8		3
		1472*													
5B12030 - ASTER On-Demand Higher-Level Products	RM_5B_05 - On-Demand ASTER Higher Level Products	1588	1589	1590	1591	1592	1593	1594	1595	1596	1597	26	25		1
		1598	1600	1601	1602	1603	1604	1605	1606	1607*	1608*				
		1609*	1610*	1611*	1612*	1613*	1599								
5B10030 - V0-ECS Gateway (Integrated Browse and Enhancements)	RM_5B_06 - Integrated Browse RM_5B_08 - V0 Gateway Enhancements	1423	1492	1493	1494	1491						5	4	1	
5B08050 - Landsat-7 Error Handling	SM_5B_03 - Landsat-7 Error Handling	1634	1635	1637	1638	1639	1640	1641*	1642*	1636		9	8	1	
Criteria Total:												253	244	2	7

Table 3-3. Release 5B PVC Criteria Verification Status Summary

Ticket	Criteria Key	Total	V	NT	NV
SM_5B_01 - Ingest Operability and New Data Types	1633**	1	1		
RM_5B_05 - On-Demand ASTER Higher Level Products	1614**	1	1		
RM_5B_06 - Integrated Browse	1424**	1	1		
SM_5B_02 - Landsat-7 Floating Scene Subsetting	1477**	1		1	
RM_5B_08 - V0 Gateway Enhancements	1495**	1		1	
SL_5B_01 - GSFC 24-Hour Workload Performance	1776**	1		1	
SL_5B_02 - EDC 24-Hour Workload Performance	1777**	1		1	
Criteria Total:		7	3	4	0

3.6 NCR Status

Discrepancies observed during Acceptance Testing are filed as NCRs and entered into the Nonconformance Reporting and Corrective Action (NRCA) system for disposition by the NCR Review Board. All ECS NCRs are entered into the Distributed Defect Tracking System (DDTS) tool for prioritization, assignment, and status tracking by the ECS NCR Review Board.

During the period of Release 5B Acceptance Testing in the VATC, a total of 51 new NCRs were generated. Table 3-4 lists the number of NCRs generated by severity. During the execution of acceptance tests, 69 previously existing NCRs were verified and closed. Table 3-5 lists the number of NCRs verified and closed in each severity category.

Table 3-4. NCRs Generated during Release 5B VATC Acceptance Testing.

Severity	NCR's Generated
1	6
2	25
3	15
4	4
5	1

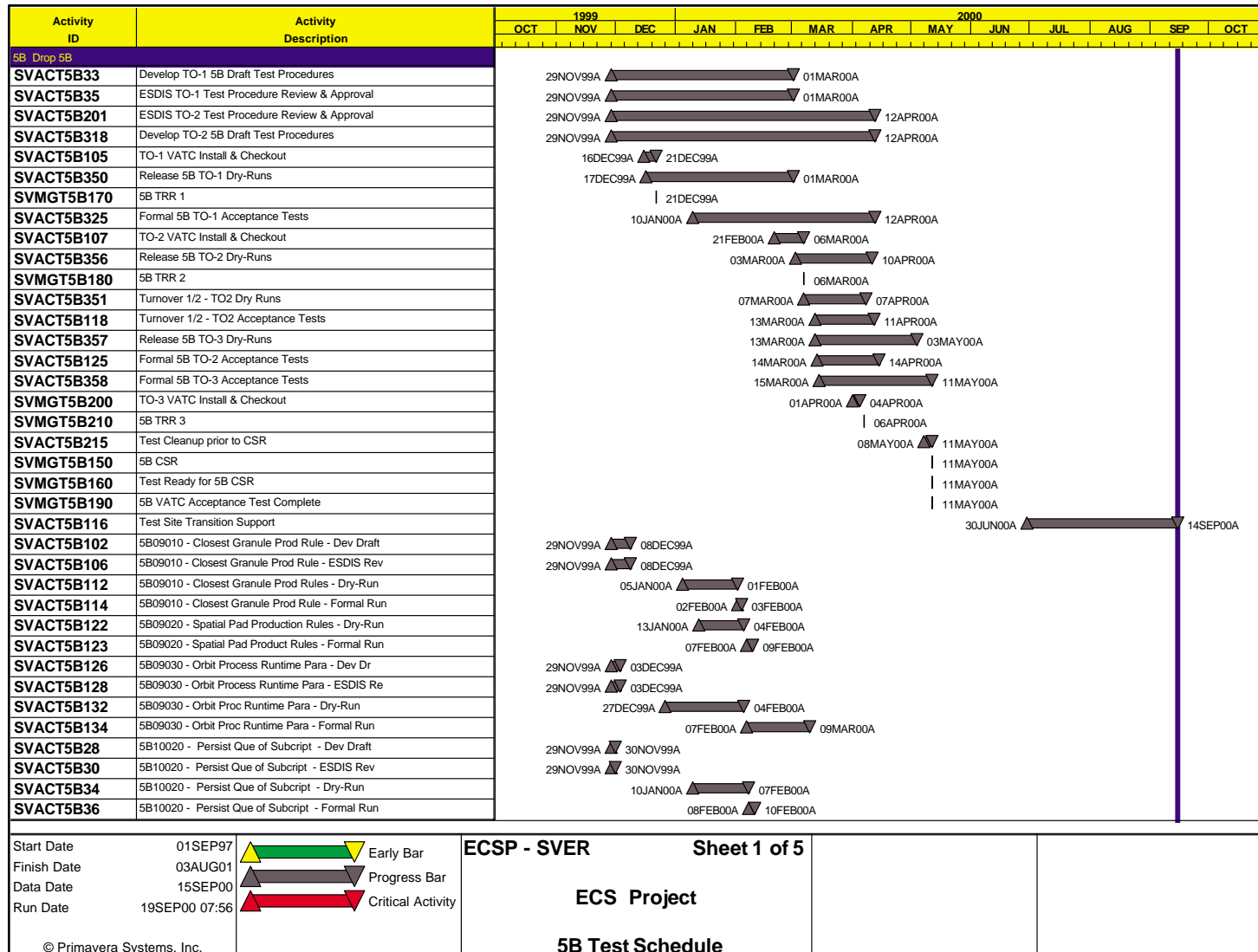
Table 3-5. NCRs Closed during Release 5B Acceptance Testing.

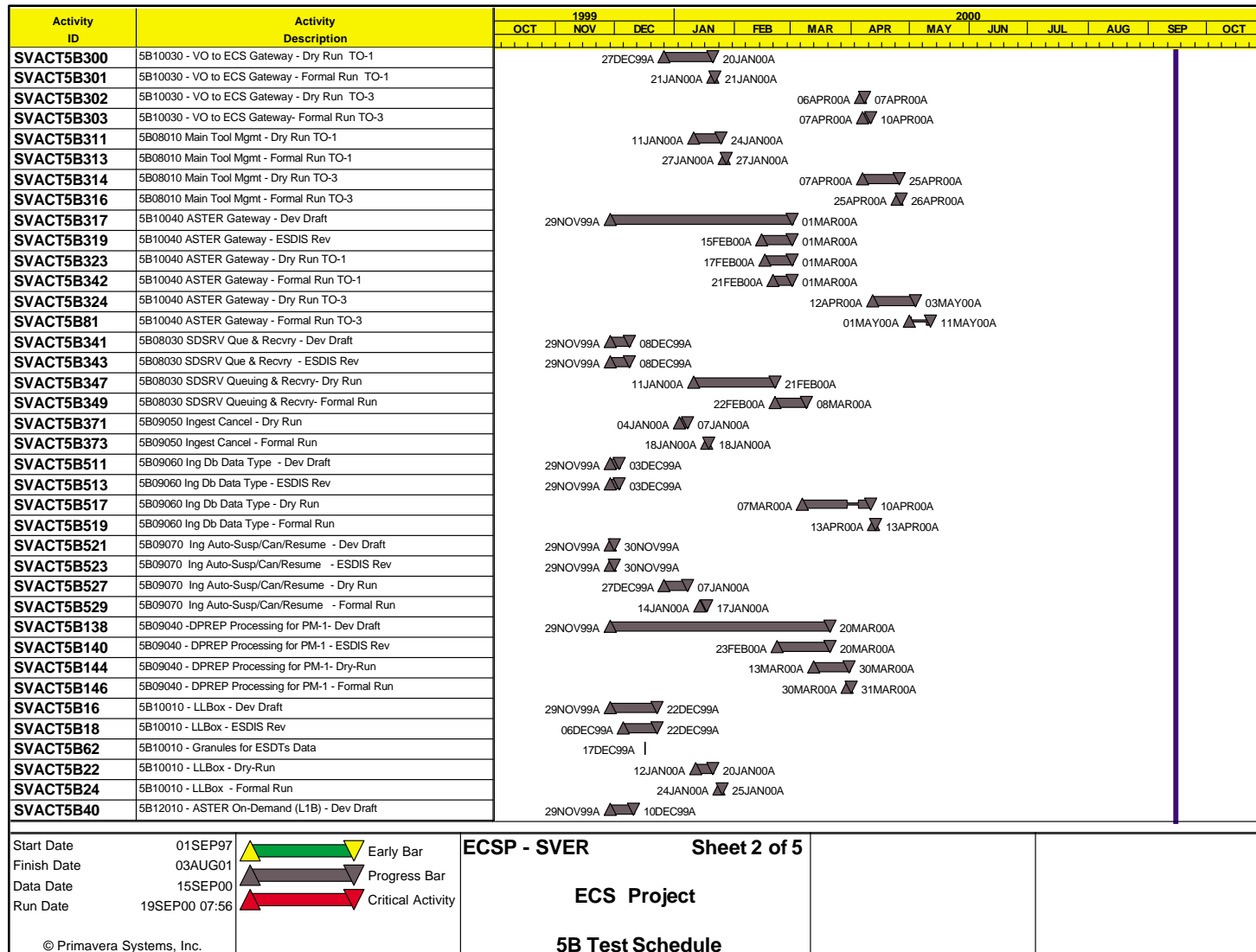
Severity	NCR's Closed
1	6
2	38
3	24
4	1
5	0

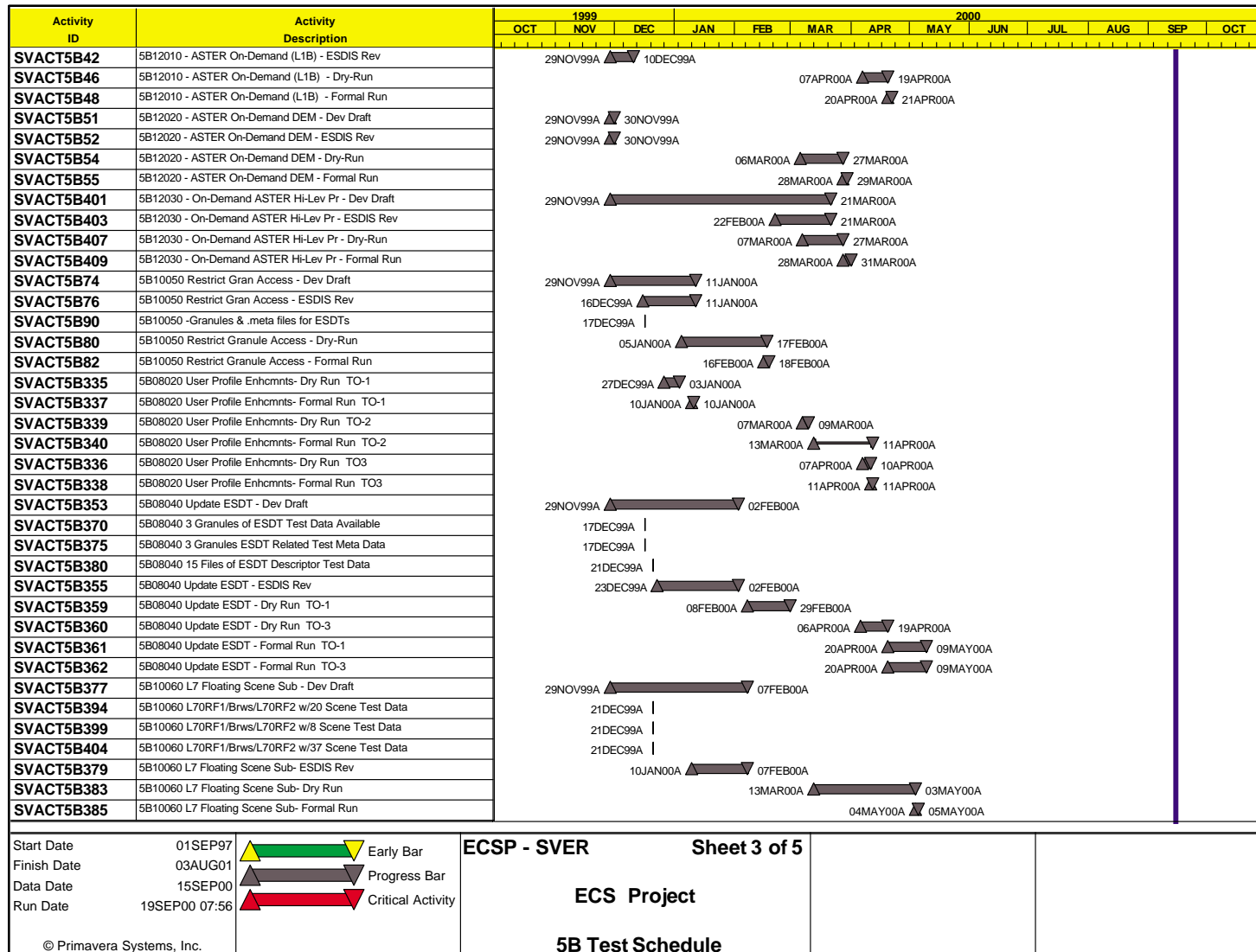
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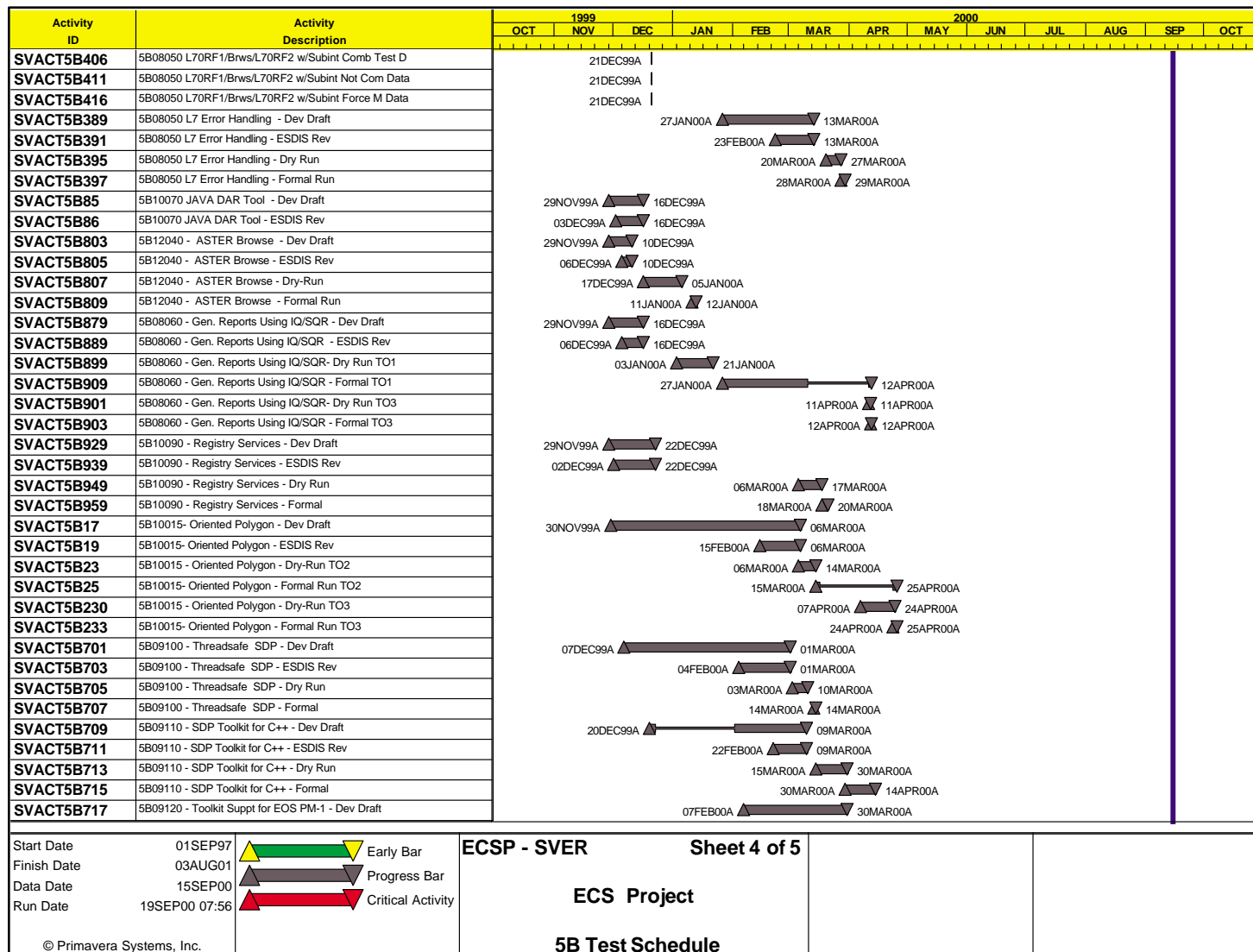
Appendix A. Release 5B Acceptance Test Schedule

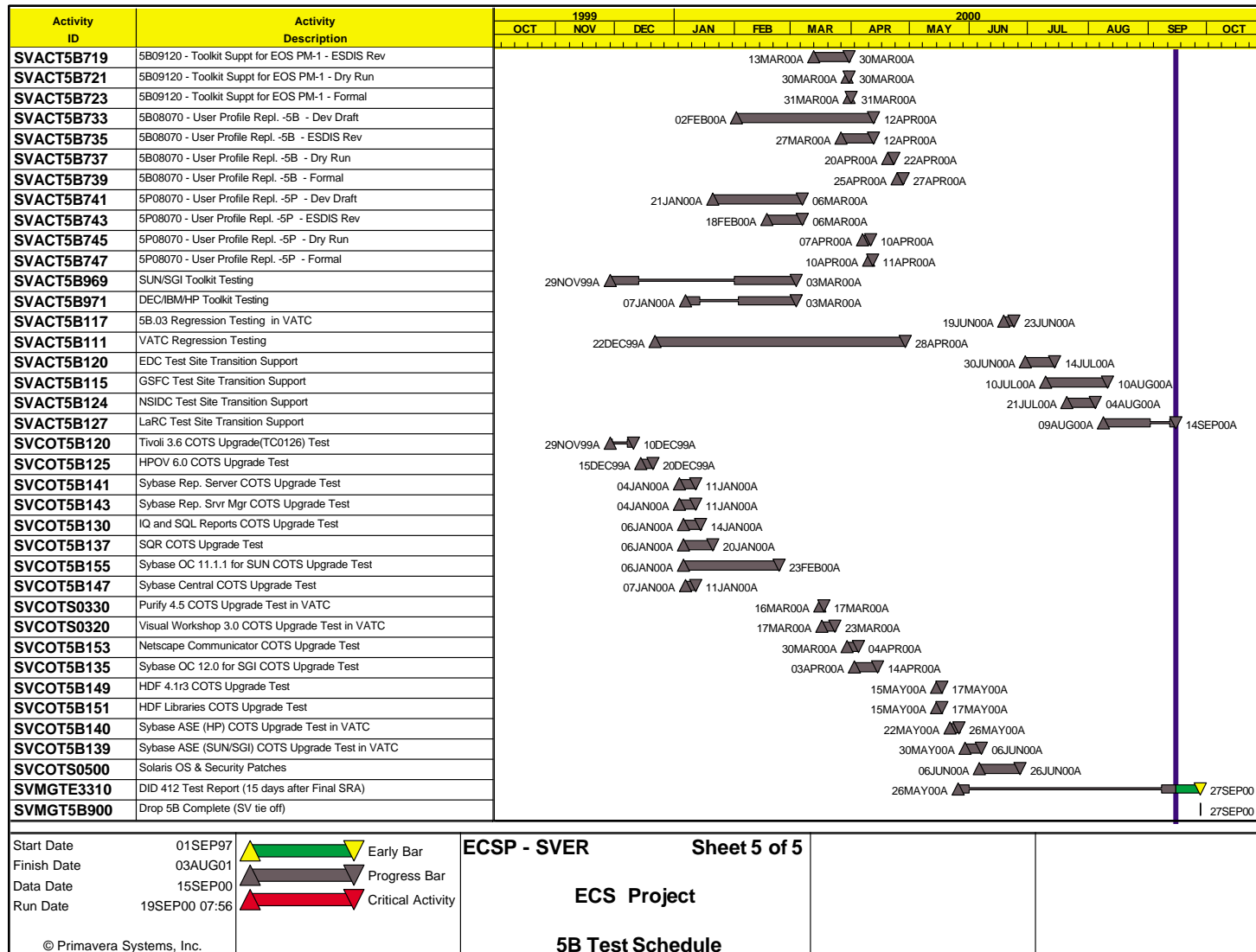
Appendix A contains the schedule of Release 5B acceptance test activities as maintained in Primavera.











Appendix B. Verification Database (VDB) Release 5B Test Results

The table below contains the results of Release 5B Formal Testing as contained in the VDB. This table is derived from the "Criteria to Test Case Log With NCRs" Status Report, which was down-loaded on 9/18/00 from the following Verification Database (VDB) Web Site: (http://ecsv.gsfc.nasa.gov/ecsv_v2/reports/status/index.html). The "esdis_status", "(NCR) status", "CRITERIA.comment", and "ccr_no" columns contained in the VDB are not included here. Also, the information contained in the "(NCR) severity" column was merged with the information in the "identifier", i.e., NCR number, column. Note: For Criteria Key 1621, the "Verification Status" is "V" (verified) as determined during formal testing; however, the "esdis_status" in the VDB is "NV" (not verified).

Ticket	Criteria Key	Criteria ID	Criteria Statement	Criteria Type	Criteria Drop	Test Key	Test Case ID	Test Case Title	Test Drop	Site ID	Verification Status	NCR Number (Severity)	Witness	Comment
EN_5B_01	1643	10	Bring up the IQ tool and verify that the following databases are visible : INS, PDPS, SDSRV, DDIST, MSS Accountability, IDG Configuration Registry	FC	5B	1912	5B08060	Generate Reports Using IQ/SQR Tools	5B	VATC	V		J. Street	4/12/00: 5B Turnover-3.
EN_5B_01	1644	20	Bring up the SQR tool and verify that the following databases are visible : INS, PDPS, SDSRV, DDIST, MSS Accountability, IDG Configuration Registry	FC	5B	1912	5B08060	Generate Reports Using IQ/SQR Tools	5B	VATC	V		J. Street	4/12/00: 5B Turnover-3.
EN_5B_01	1645	30	For INS show that both IQ and SQR can retrieve a list of recently ingested granules	FC	5B	1912	5B08060	Generate Reports Using IQ/SQR Tools	5B	VATC	V		T. Gresko	1/27/00: 5B Turnover-1.
EN_5B_01	1646	40	For PDPS show that both IQ and SQR can retrieve a list of recently produced granules	FC	5B	1912	5B08060	Generate Reports Using IQ/SQR Tools	5B	VATC	V		T. Gresko	1/27/00: 5B Turnover-1.
EN_5B_01	1647	50	For SDSRV show that both IQ and SQR can retrieve a list of products produced using a given granule as input	FC	5B	1912	5B08060	Generate Reports Using IQ/SQR Tools	5B	VATC	V		T. Gresko	1/27/00: 5B Turnover-1.
EN_5B_01	1648	60	For DDIST show that both IQ and SQR can retrieve a list of products pending distribution	FC	5B	1912	5B08060	Generate Reports Using IQ/SQR Tools	5B	VATC	V		T. Gresko	1/27/00: 5B Turnover-1.
EN_5B_01	1649	70	For Accountability show that IQ and SQR can retrieve a list of outstanding orders	FC	5B	1912	5B08060	Generate Reports Using IQ/SQR Tools	5B	VATC	V		T. Gresko	1/27/00: 5B Turnover-1.
EN_5B_01	1650	80	For the Configuration Registry show that IQ and SQR can retrieve the parameters for a given application	FC	5B	1912	5B08060	Generate Reports Using IQ/SQR Tools	5B	VATC	V		J. Street	4/12/00: 5B Turnover-3.
EN_5B_01	1651	90	Create a copy of one of the databases used in generating a report. Bring up the IQ tool and verify that the newly created database is visible. From IQ, generate a simple report using the newly created database.	FC	5B	1912	5B08060	Generate Reports Using IQ/SQR Tools	5B	VATC	V		T. Gresko	1/27/00: 5B Turnover-1.
EN_5B_01	1652	100	Bring up the SQR tool and verify that the newly created database is visible. From SQR, generate a simple report using the newly created database.	FC	5B	1912	5B08060	Generate Reports Using IQ/SQR Tools	5B	VATC	V		T. Gresko	1/27/00: 5B Turnover-1.
HA_5B_01	1670	10	Demonstrate the existing .CFG file mechanism still works: make sure that the contents of the .CFG file differ from the contents of the registry database, start an ECS server, and confirm that the logged attributes match the .CFG file.	FC	5B	1918	5B10090	Configuration Registry	5B	VATC	V		T. Gresko	3/20/00: 5B Turnover-2.
HA_5B_01	1671	20	Use the importation tool to import the contents of a .CFG file into the registry database. Use the registry GUI to confirm that the contents have been imported correctly.	FC	5B	1918	5B10090	Configuration Registry	5B	VATC	V		T. Gresko	3/20/00: 5B Turnover-2.

HA_5B_01	1672	30	Confirm that configuration parameters can be obtained from the registry: make sure that there is no .CFG file in the CUSTOM/cfg directory, bring up an ECS server, and verify that the logged parameters match the contents of the registry database for the server and the host. At least one of the parameters must be specified in the database via the indirection mechanism (@path), and at least one of the parameters must be a list of values.	FC	5B	1918	5B1009 0	Configuration Registry	5B	VATC	V		T. Gresko	3/20/00: 5B Turnover-2.
HA_5B_01	1673	40	Verify that the registry GUI can perform the following operations: 1. copy an attribute tree, assigning it a new name 2. associate an attribute tree with a mode 3. move the subtree of attributes associated with a server to another tree 4. rename a subtree 5. delete a subtree 6. modify the value of a parameter, including entering a change description 7. add a new parameter to the subtree for a server 8. add descriptive info for a parameter, including text description of the value, min/max values, and datatype) 9. replicate a subtree of an attribute tree to another location within the same attribute tree. 10. Replicate a subtree of an attribute tree to a location within another Attribute Tree.	FC	5B	1918	5B1009 0	Configuration Registry	5B	VATC	V		T. Gresko	3/20/00: 5B Turnover-2.
HA_5B_01	1674	50	Verify that the database can be restored from an on-disk backup taken within the previous two days.	FC	5B	1918	5B1009 0	Configuration Registry	5B	VATC	V		T. Gresko	3/20/00: 5B Turnover-2.
HA_5B_01	1675	60	Use the command-line registry query tool to verify that all parameters in a subtree are returned when the path of the subtree ends with a wildcard (*).	FC	5B	1918	5B1009 0	Configuration Registry	5B	VATC	V		T. Gresko	3/20/00: 5B Turnover-2.
HA_5B_01	1676	70	Verify that the registry server will accept the Sybase server name, username, password, and mode from the command line: 1. Achieve a successful db login 2. change each parameter in turn and verify that the registry server does not login successfully.	FC	5B	1918	5B1009 0	Configuration Registry	5B	VATC	V		T. Gresko	3/20/00: 5B Turnover-2.
HA_5B_01	1677	80	Verify that separate instances of the registry server and database can run in separate modes: 1. bring up server 1 and database 1 2. bring up server 2 and database 2 in another mode 3. verify that database 1 changes made by server 1 are not reflected in database 2, and vice versa.	FC	5B	1918	5B1009 0	Configuration Registry	5B	VATC	V		T. Gresko	3/20/00: 5B Turnover-2.
HA_5B_01	1858	90	Bring up two registry servers on separate machines, but in the same mode. Then bring up an ECS server and verify it has read its configuration parameters correctly. Check the logs of the registry servers and kill the one that got the request from the ECS server. Bring up another ECS server and verify it has read its configuration parameters correctly.	FC	5B	1918	5B1009 0	Configuration Registry	5B	VATC	V		T. Gresko	5/12/00: 5B Turnover-3.

RH_5B_01	1425	10	Demonstrate that a process (i.e., PGE) can be run that concurrently executes a specific number of threads (from 2 up to N, the maximum allowable number of threads), where each thread executes calls to SDP toolkit functions. Demonstrate this multi-threaded processing where the toolkit functions called within a thread is an arbitrary mixture of the SDP toolkit functions called repeatedly over time. All testing of the multithreaded toolkit must be performed in accordance with the constraints for multi-threaded processing provided in the Toolkit User's Guide as amended for multithreaded processing.	FC	5B	1913	5B0910 0	Thread-safe Version of SDP Toolkit	5B	VATC	V		T. Gresko	3/14/00: 5B Turnover-2:.
RH_5B_01	1426	20	Demonstrate multi-threaded processing where the toolkit functions called within a thread is identical to other function calls in other threads so that the same SDP toolkit interfaces are called repeatedly. All testing of the multithreaded toolkit must be performed in accordance with the constraints for multi-threaded processing provided in the Toolkit User's Guide as amended for multithreaded processing.	FC	5B	1913	5B0910 0	Thread-safe Version of SDP Toolkit	5B	VATC	V		T. Gresko	3/14/00: 5B Turnover-2:.
RH_5B_01	1427	30	Demonstrate that the global resources used by a multi-threaded PGE, e.g., log files, PCF file, .MET files, are not corrupted as a result of updates from multiple threads. All testing of the multithreaded toolkit must be performed in accordance with the constraints for multi-threaded processing provided in the Toolkit User's Guide as amended for multithreaded processing.	FC	5B	1913	5B0910 0	Thread-safe Version of SDP Toolkit	5B	VATC	V		T. Gresko	3/14/00: 5B Turnover-2:.
RH_5B_01	1428	40	Demonstrate that a measurable gain is achieved when running a multi-threaded PGE in comparison to a single threaded version of the same activity (i.e., that the locking of code segments has not effectively serialized the multi-threaded application). All testing of the multithreaded toolkit must be performed in accordance with the constraints for multi-threaded processing provided in the Toolkit User's Guide as amended for multithreaded processing.	FC	5B	1913	5B0910 0	Thread-safe Version of SDP Toolkit	5B	VATC	V		T. Gresko	3/14/00: 5B Turnover-2:.
RH_5B_01	1429	50	Demonstrate (for example, by inspecting logs which record thread IDs) that the multiple threads are in reality interleaving activity and so running concurrently. All testing of the multithreaded toolkit must be performed in accordance with the constraints for multi-threaded processing provided in the Toolkit User's Guide as amended for multithreaded processing.	FC	5B	1913	5B0910 0	Thread-safe Version of SDP Toolkit	5B	VATC	V		T. Gresko	3/14/00: 5B Turnover-2:.
RH_5B_01	1430	60	Demonstrate that the threadsafe version and the non-threaded version of the toolkits may both be installed on a single platform and used to build executables that will not interfere with each other. All testing of the multithreaded toolkit must be performed in accordance with the constraints for multi-threaded processing provided in the Toolkit User's Guide as amended for multithreaded processing.	FC	5B	1913	5B0910 0	Thread-safe Version of SDP Toolkit	5B	VATC	V		T. Gresko	3/14/00: 5B Turnover-2:.

RH_5B_01	1431	70	Demonstrate all other criteria listed in this ticket for testing threadsafe toolkit on both the Sun platforms, running the correct version of the OS, and SGI platforms, running the correct version of the OS. All testing of the multithreaded toolkit must be performed in accordance with the constraints for multi-threaded processing provided in the Toolkit User's Guide as amended for multithreaded processing.	FC	5B	1913	5B0910 0	Thread-safe Version of SDP Toolkit	5B	VATC	V		T. Gresko	3/14/00: 5B Turnover-2.
RH_5B_01	1432	80	Plan and execute multiple thread-safe DPRs on PDPS hardware. Verify that they do not compete for resources with each other so long as the total number of threads expected to run with each DPR is less than the total number of processors on the SPR hardware. All testing of the multithreaded toolkit must be performed in accordance with the constraints for multi-threaded processing provided in the Toolkit User's Guide as amended for multithreaded processing.	FC	5B	1913	5B0910 0	Thread-safe Version of SDP Toolkit	5B	VATC	V		T. Gresko	3/14/00: 5B Turnover-2.
RH_5B_02	1437	10	Compile, build and execute one or more sample PGE programs linking with the C++ SDP Toolkit libraries that exercise each the file I/O toolkit interfaces as documented in the SDP toolkit documentation. Confirm that the response of the interfaces is consistent with the Fortran and C versions of the toolkit.	FC	5B	1928	5B0911 0	C++ Version of SDP Toolkit	5B	VATC	V		S. Wong	4/13/00: 5B Turnover-3.
RH_5B_02	1438	20	Compile, build and execute one or more sample PGE programs linking with the C++ SDP Toolkit libraries that exercise each the process control toolkit interfaces as documented in the SDP toolkit documentation. Confirm that the response of the interfaces is consistent with the Fortran and C versions of the toolkit.	FC	5B	1928	5B0911 0	C++ Version of SDP Toolkit	5B	VATC	V		S. Wong	4/13/00: 5B Turnover-3.
RH_5B_02	1439	30	Compile, build and execute one or more sample PGE programs linking with the C++ SDP Toolkit libraries that exercise each the shared memory management toolkit interfaces as documented in the SDP toolkit documentation. Confirm that the response of the interfaces is consistent with the Fortran and C versions of the toolkit.	FC	5B	1928	5B0911 0	C++ Version of SDP Toolkit	5B	VATC	VW		S. Wong	4/13/00: 5B Turnover-3. NCR 26386(3).
RH_5B_02	1440	40	Compile, build and execute one or more sample PGE programs linking with the C++ SDP Toolkit libraries that exercise each the spacecraft ephemeris and attitude data access toolkit interfaces as documented in the SDP toolkit documentation. Confirm that the response of the interfaces is consistent with the Fortran and C versions of the toolkit.	FC	5B	1928	5B0911 0	C++ Version of SDP Toolkit	5B	VATC	VW	26093 (3)	S. Wong	4/13/00: 5B Turnover-3. NCR 26093(3).
RH_5B_02	1441	50	Compile, build and execute one or more sample PGE programs linking with the C++ SDP Toolkit libraries that exercise each the time and data conversion toolkit interfaces as documented in the SDP toolkit documentation. Confirm that the response of the interfaces is consistent with the Fortran and C versions of the toolkit.	FC	5B	1928	5B0911 0	C++ Version of SDP Toolkit	5B	VATC	V		S. Wong	4/13/00: 5B Turnover-3.

RH_5B_02	1442	60	Compile, build and execute one or more sample PGE programs linking with the C++ SDP Toolkit libraries that exercise each the digital elevation model toolkit interfaces as documented in the SDP toolkit documentation. Confirm that the response of the interfaces is consistent with the Fortran and C versions of the toolkit.	FC	5B	1928	5B0911 0	C++ Version of SDP Toolkit	5B	VATC	V		S. Wong	4/13/00: 5B Turnover-3.
RH_5B_02	1443	70	Compile, build and execute one or more sample PGE programs linking with the C++ SDP Toolkit libraries that exercise each the ancillary data access toolkit interfaces as documented in the SDP toolkit documentation. Confirm that the response of the interfaces is consistent with the Fortran and C versions of the toolkit.	FC	5B	1928	5B0911 0	C++ Version of SDP Toolkit	5B	VATC	V		S. Wong	4/13/00: 5B Turnover-3. NCR 26306(2). 4/18/00: 5B Turnover-3: NCR 26306(2) verified.
RH_5B_02	1444	80	Compile, build and execute one or more sample PGE programs linking with the C++ SDP Toolkit libraries that exercise each the celestial body position toolkit interfaces as documented in the SDP toolkit documentation. Confirm that the response of the interfaces is consistent with the Fortran and C versions of the toolkit.	FC	5B	1928	5B0911 0	C++ Version of SDP Toolkit	5B	VATC	VW	26093 (3)	S. Wong	4/13/00: 5B Turnover-3. NCR 26093(3).
RH_5B_02	1445	90	Compile, build and execute one or more sample PGE programs linking with the C++ SDP Toolkit libraries that exercise each the coordinate system conversion toolkit interfaces as documented in the SDP toolkit documentation. Confirm that the response of the interfaces is consistent with the Fortran and C versions of the toolkit.	FC	5B	1928	5B0911 0	C++ Version of SDP Toolkit	5B	VATC	VW	26093 (3)	S. Wong	4/13/00: 5B Turnover-3. NCR 26093(3).
RH_5B_02	1446	100	Compile, build and execute one or more sample PGE programs linking with the C++ SDP Toolkit libraries that exercise each the geo-coordinate transformation toolkit interfaces as documented in the SDP toolkit documentation. Confirm that the response of the interfaces is consistent with the Fortran and C versions of the toolkit.	FC	5B	1928	5B0911 0	C++ Version of SDP Toolkit	5B	VATC	V		S. Wong	4/13/00: 5B Turnover-3.
RH_5B_02	1447	110	Compile, build and execute one or more sample PGE programs linking with the C++ SDP Toolkit libraries that exercise each the constants and units conversion toolkit interfaces as documented in the SDP toolkit documentation. Confirm that the response of the interfaces is consistent with the Fortran and C versions of the toolkit.	FC	5B	1928	5B0911 0	C++ Version of SDP Toolkit	5B	VATC	V		S. Wong	4/13/00: 5B Turnover-3.
RH_5B_02	1448	120	Compile, build and execute one or more sample PGE programs linking with the C++ SDP Toolkit libraries that exercise each the dynamic memory management toolkit interfaces as documented in the SDP toolkit documentation. Confirm that the response of the interfaces is consistent with the Fortran and C versions of the toolkit.	FC	5B	1928	5B0911 0	C++ Version of SDP Toolkit	5B	VATC	VW		S. Wong	4/13/00: 5B Turnover-3. NCR 26385(3).
RH_5B_03	1379	10	Demonstrate the ability to correctly perform the SSIT activities to register a PGE that uses the closest granule production rule.	FC	5B	1901	5B0901 0	Closest Granule and Minimum/Maximum Granule Production Rule	5B	VATC	V		J. Street	2/3/00: 5B Turnover-1.

RH_5B_03	1380	20	Demonstrate the ability to correctly plan and execute a PGE that requires a 'closest granules' prior to the DPR processing time. Exercise the following cases: the granule is (a) found within the first query interval (b) found within the last query interval (c) found in an intermediate interval (d) located coincident to the DPR period.	FC	5B	1901	5B0901 0	Closest Granule and Minimum/Maximum Granule Production Rule	5B	VATC	V		J. Street	2/3/00: 5B Turnover-1.
RH_5B_03	1381	30	Demonstrate the ability to correctly plan and execute a PGE that requires a 'closest granules' following the DPR processing time. Exercise the following cases: the granule is (a) found within the first query interval (b) found within the last query interval (c) found in an intermediate interval (d) located coincident to the DPR period.	FC	5B	1901	5B0901 0	Closest Granule and Minimum/Maximum Granule Production Rule	5B	VATC	V		J. Street	2/3/00: 5B Turnover-1.
RH_5B_03	1382	40	Demonstrate the ability to correctly plan and execute a PGE that requires both the closest granule production rule and the min/max granules production rule. Exercise the case for a minimum of 3-4 'closest granules' prior to the DPR processing time. Exercise the following cases: the granules are (a) all found within the first query interval (b) all found within the last query interval (c) found distributed arbitrarily among the intervals. Exercise the same case but in the post-DPR processing time period.	FC	5B	1901	5B0901 0	Closest Granule and Minimum/Maximum Granule Production Rule	5B	VATC	V		J. Street	2/3/00: 5B Turnover-1.
RH_5B_03	1383	50	Demonstrate the ability to correctly plan and execute a PGE where DPR time is set to the future and it requires one or more 'closest granules' that are to arrive in the future time before the DPR time. (DPR with the dummy granule is first created as a place-holder and later upon timer wakeup, dummy granules are replaced by the actual granules.).	FC	5B	1901	5B0901 0	Closest Granule and Minimum/Maximum Granule Production Rule	5B	VATC	V		J. Street	2/3/00: 5B Turnover-1.
RH_5B_03	1384	60	Demonstrate the ability to correctly plan and execute a PGE that requires one or more 'closest granules' after the DPR processing time but where the combination of query repeat value and query interval may go beyond the present time. Verify that the query cycle will not go beyond the present time.	FC	5B	1901	5B0901 0	Closest Granule and Minimum/Maximum Granule Production Rule	5B	VATC	V		J. Street	2/3/00: 5B Turnover-1.
RH_5B_03	1385	70	Verify that if no granules are found for the specified query period and maximum queries values that the DPR does fail.	EC	5B	1901	5B0901 0	Closest Granule and Minimum/Maximum Granule Production Rule	5B	VATC	V		J. Street	2/3/00: 5B Turnover-1.
RH_5B_03	1386	80	Verify that if the closest granules production rule is used in conjunction with the min/max granules production rule and less than the minimum or more than the maximum number of granules are found for the specified query period and maximum queries values that the DPR does fail.	EC	5B	1901	5B0901 0	Closest Granule and Minimum/Maximum Granule Production Rule	5B	VATC	V		J. Street	2/3/00: 5B Turnover-1.
RH_5B_04	1416	10	Demonstrate the ability to correctly perform the SSIT activities to register a PGE that uses the Spatial Pad production rule.	FC	5B	1902	5B0902 0	Spatial Pad Production Rule	5B	VATC	V		T. Gresko	2/9/00: 5B Turnover-1.

RH_5B_04	1417	20	Demonstrate the spatial pad granule selection capability by correctly planning and executing a PGE where ECS/PLS selects a granule for input to processing based upon a specifying spatial region. The specifying spatial region is defined by the spatial extent of a primary input granule plus a spatial pad value (in KM) that is used to expand the primary input granule spatial region. Selected granules must fall within or overlap the boundary of the specifying spatial region.	FC	5B	1902	5B0902 0	Spatial Pad Production Rule	5B	VATC	V		T. Gresko	2/9/00: 5B Turnover-1.
RH_5B_04	1418	30	Demonstrate for the spatial pad production rule that granules that otherwise might satisfy the query but fall outside the region are rejected.	FC	5B	1902	5B0902 0	Spatial Pad Production Rule	5B	VATC	V		T. Gresko	2/9/00: 5B Turnover-1.
RH_5B_04	1419	40	Demonstrate the spatial pad granule selection capability where selected granule share one or more boundaries with the specifying spatial region while still being completely contained within the specifying spatial region.	FC	5B	1902	5B0902 0	Spatial Pad Production Rule	5B	VATC	V		T. Gresko	2/9/00: 5B Turnover-1.
RH_5B_04	1420	50	Demonstrate the ability of SSIT components to limit the spatial pad factor to less than 1000 KM for PGEs using the spatial pad production rule.	FC	5B	1902	5B0902 0	Spatial Pad Production Rule	5B	VATC	V		T. Gresko	2/9/00: 5B Turnover-1.
RH_5B_04	1421	60	Demonstrate the spatial pad granule selection capability where the spatial pad value is 0 KM.	FC	5B	1902	5B0902 0	Spatial Pad Production Rule	5B	VATC	V		T. Gresko	2/9/00: 5B Turnover-1.
RH_5B_04	1422	70	Demonstrate that the following errors are detected during the PGE registration processes: a. A negative spatial pad value is input	EC	5B	1902	5B0902 0	Spatial Pad Production Rule	5B	VATC	V		T. Gresko	2/9/00: 5B Turnover-1.
RH_5B_05	1569	10	Demonstrate the ability to correctly perform the SSIT activities to register a PGE that uses the Orbit Processing Runtime Parameters Production Rules.	FC	5B	1903	5B0903 0	Orbit Processing Runtime Parameters Production Rule	5B	VATC	V		T. Gresko	3/9/00: 5B Turnover-2
RH_5B_05	1570	20	Demonstrate that the PRONG CI can compute from the start time of an input granule and PM-1 orbit model information the number of the orbit within the day corresponding to the data start time, where the first whole orbit in the day is identified as number 1. Show that this value is provided to the associated PGE as a runtime parameter.	FC	5B	1903	5B0903 0	Orbit Processing Runtime Parameters Production Rule	5B	VATC	V		S. Wong	3/9/00: 5B Turnover-2: Actually, the very first orbit of the day, whether whole orbit or partial, is identified as number 1. NCR 25982(2). 4/13/00: 5B Turnover-3: NCR 25982(2) has been verified.
RH_5B_05	1571	30	Demonstrate the ability to compute the orbit number within the day for granules with start times that are equal to the start time of the first whole orbit of the day. Show that this value is provided to the associated PGE as a runtime parameter.	FC	5B	1903	5B0903 0	Orbit Processing Runtime Parameters Production Rule	5B	VATC	V		T. Gresko	3/9/00: 5B Turnover-2.
RH_5B_05	1572	40	Demonstrate the ability to compute the orbit number within the day for granules with start times that are equal to the start time of the last orbit to start within the day. Show that this value is provided to the associated PGE as a runtime parameter.	FC	5B	1903	5B0903 0	Orbit Processing Runtime Parameters Production Rule	5B	VATC	V		T. Gresko	3/9/00: 5B Turnover-2.

RH_5B_05	1573	50	Demonstrate the ability to compute the orbit number within the day for granules with start times that are equal to the start time of the first orbit of the day which starts at 0Z of that day. Show that this value is provided to the associated PGE as a runtime parameter.	FC	5B	1903	5B0903 0	Orbit Processing Runtime Parameters Production Rule	5B	VATC	V		T. Gresko	3/9/00: 5B Turnover-2.
RH_5B_05	1574	60	Demonstrate that the PRONG CI can compute from the start time of an input granule and PM-1 orbit model information the number of the granule within the orbit corresponding to the data start time. The first granule of an orbit may begin at any time, T, Such that: $T_0 \leq T < T_0 + 6 \text{ minutes}$ Where T_0 is the orbit start time. All granules are six minutes in duration or less. Show that this value is provided to the associated PGE as a runtime parameter.	FC	5B	1903	5B0903 0	Orbit Processing Runtime Parameters Production Rule	5B	VATC	V		T. Gresko	3/9/00: 5B Turnover-2.
RH_5B_05	1575	70	Demonstrate that the PRONG CI can compute the granule number within the orbit where the granule start time coincides with the orbit start time. The granule number should be 1. Show that this value is provided to the associated PGE as a runtime parameter.	FC	5B	1903	5B0903 0	Orbit Processing Runtime Parameters Production Rule	5B	VATC	V		T. Gresko	3/9/00: 5B Turnover-2.
RH_5B_05	1576	80	Demonstrate that the PRONG CI can compute the granule number within the orbit where the granule start time coincides with the orbit start time plus six minutes. The granule number should be 2. Show that this value is provided to the associated PGE as a runtime parameter.	FC	5B	1903	5B0903 0	Orbit Processing Runtime Parameters Production Rule	5B	VATC	V		T. Gresko	3/9/00: 5B Turnover-2.
RH_5B_05	1577	90	Demonstrate that the PRONG CI can compute the year corresponding to the start time of a data collection. Show that this value is provided to the associated PGE as a runtime parameter.	FC	5B	1903	5B0903 0	Orbit Processing Runtime Parameters Production Rule	5B	VATC	V		T. Gresko	3/9/00: 5B Turnover-2.
RH_5B_05	1578	100	Demonstrate that the PRONG CI can compute the month within the year corresponding to the start time of a data collection. Show that this value is provided to the associated PGE as a runtime parameter.	FC	5B	1903	5B0903 0	Orbit Processing Runtime Parameters Production Rule	5B	VATC	V		T. Gresko	3/9/00: 5B Turnover-2.
RH_5B_05	1579	110	Demonstrate that the PRONG CI can compute the day of the month corresponding to the start time of a data collection. Show that this value is provided to the associated PGE as a runtime parameter.	FC	5B	1903	5B0903 0	Orbit Processing Runtime Parameters Production Rule	5B	VATC	V		T. Gresko	3/9/00: 5B Turnover-2.
RH_5B_06	1615	10	Demonstrate the ability of a DPREP PGE to process FDS-produced definitive orbit data producing as a result DPREP processed definitive orbit data suitable for use by SDP toolkit. Verify that output data is produced in HDF-EOS format and in native format. Verify the insertion of these granules to the SDSRV with appropriate metadata.	FC	5B	1927	5B0904 0	Orbit DPREP Processing for PM-1	5B	VATC	V		A. Sanyal	3/31/00: 5B Turnover-2.
RH_5B_06	1616	20	Demonstrate the ability of a DPREP PGE to process FDS-produced predictive orbit data producing as a result DPREP processed predictive orbit data suitable for use by SDP toolkit. Verify that output data is produced in HDF-EOS format and in native format. Verify the insertion of these granules to the SDSRV with appropriate metadata.	FC	5B	1927	5B0904 0	Orbit DPREP Processing for PM-1	5B	VATC	V		A. Sanyal	3/31/00: 5B Turnover-2.

RH_5B_06	1621	70	Demonstrate that the DPREP PGE properly responds to input orbit data (either type) that is not formatted in accordance with the ICD that define this format. The PGE should fail with an indication that the input file is not correct.	EC	5B	1927	5B0904 0	Orbit DPREP Processing for PM-1	5B	VATC	V		A. Sanyal	3/31/00: 5B Turnover-2: Pre-altered data for 1998 was used instead of real DPR data for 2000.
RH_5B_07	1833	10	Demonstrate the ability of a sample or synthetic PGE using the SDP toolkit to correctly read sample test Level 0 data sets that adhere to the EOS PM-1 GIRD format.	FC	5B	1929	5B0912 0	Toolkit Support for PM-1	5B	VATC	V		T. Gresko	3/30/00: 5B Turnover-2.
RH_5B_07	1834	20	Demonstrate the ability of a sample or synthetic PGE using the SDP toolkit to skip ahead to the first packet following a requested time. Verify that the number of packets skipped as returned in the call are correct.	FC	5B	1929	5B0912 0	Toolkit Support for PM-1	5B	VATC	V		T. Gresko	3/30/00: 5B Turnover-2.
RH_5B_07	1835	30	Demonstrate the ability of a sample or synthetic PGE using the SDP toolkit to correctly convert the time codes . Specifically, verify that the conversion between each of the following formats can be correctly accomplished: (a) UTC; (b) UT1; (c) TAI; (d) Julian Date; (e) Spacecraft clock time in GIRD format as contained in the Level 0 data set; (f) GPS time.	FC	5B	1929	5B0912 0	Toolkit Support for PM-1	5B	VATC	V		T. Gresko	3/30/00: 5B Turnover-2: Time codes (a), (c), and (e) are Verified; Time codes (b), (d), and (f) are Not Tested.
RM_5B_01	1481	10	Demonstrate the conversion of existing data to LLBOX – snapshot the inventory prior to conversion, paying attention those granule IDs with BoundingBox spatial definitions prior to conversion, and comparing those same IDs for correct LLBOX spatial definitions.	FC	5B	1914	5B1001 0	LLBox	5B	VATC	V		T. Gresko	1/26/00: 5B Turnover-1.
RM_5B_01	1482	20	Ingest granules for an ESDT that uses LLBOX. – confirm correct use of the spatial type in the inventory	FC	5B	1914	5B1001 0	LLBox	5B	VATC	V		T. Gresko	1/26/00: 5B Turnover-1.
RM_5B_01	1483	30	Ingest granules for an ESDT that uses oriented polygon. – confirm correct use of the spatial type in the inventory, and correct ordering of data points according to the 'right hand inside' rule.	FC	5B	1923	5B1001 5	Oriented Polygon	5B	VATC	V		T. Gresko	3/16/00: 5B Turnover-2.
RM_5B_01	1484	40	Use the EDG client to submit searches that specify a latitude/longitude extent as a search constraint against a collection using LLBOX rectangles; and against a collection using gpolygons as spatial extents. The search areas must include geographic areas of different sizes and at different locations on the globe. They must be paired with conditions using a PSA and one extended core metadata attribute. Verify that the searches return the correct results.	FC	5B	1923	5B1001 5	Oriented Polygon	5B	VATC	V		S. Wong	4/24/00: 5B Turnover-3.
RM_5B_01	1485	50	Use the EDG client to submit searches that specify a polygonal spatial extent as a search criterion against a collection using rectangles; and against a collection using gpolygons. The search areas must include geographic areas of different sizes and at different locations on the globe. They must be paired with conditions using a PSA and one extended core metadata attribute. Verify that the searches return the correct results.	FC	5B	1923	5B1001 5	Oriented Polygon	5B	VATC	V		S. Wong	4/24/00: 5B Turnover-3.

RM_5B_01	1486	60	Use the EDG client to submit searches that specify a latitude/longitude extent as a search constraint against two collections of which one uses LLBOX rectangles and the other gpolygons. The search areas must include geographic areas of different sizes and at different locations on the globe. They must be paired with conditions using a PSA and one extended core metadata attribute.	FC	5B	1923	5B10015	Oriented Polygon	5B	VATC	V		S. Wong	4/24/00: 5B Turnover-3.
RM_5B_01	1487	70	Insert a granule with an oriented polygon covering an entire orbit. Verify it is found when the search area overlaps with the orbit, and not found when the search area is outside the orbit.	FC	5B	1923	5B10015	Oriented Polygon	5B	VATC	V		T. Gresko	3/16/00: 5B Turnover-2.
RM_5B_01	1488	80	Insert a granule with an LLBOX rectangle covering a longitude extending all the way around the earth (i.e., a latitude band). Verify it is found when the search area overlaps with the band, and not found when the search area is outside the band.	FC	5B	1914	5B10010	LLBox	5B	VATC	V		T. Gresko	1/26/00: 5B Turnover-1.
RM_5B_01	1489	90	Insert a granule with a global rectangle as coverage. Verify that it is found by spatial searches that covering geographic areas of different sizes and at different locations on the globe.	FC	5B	1914	5B10010	LLBox	5B	VATC	V		T. Gresko	1/26/00: 5B Turnover-1.
RM_5B_01	1490	100	Submit a lat/long rectangle search crossing the +180 degrees to -180 degrees longitude discontinuity	FC	5B	1914	5B10010	LLBox	5B	VATC	V		T. Gresko	1/26/00: 5B Turnover-1.
RM_5B_02	1371	10	Insert a number of granules in rapid succession to trigger a very large number of acquire actions for several events. Verify that the SDSRV/SBSRV event notification interface is no longer synchronous and that the SBSRV indeed starts queuing up event notices and their actions.	FC	5B	1908	5B10020	Persistent Queuing of Subscription Actions	5B	VATC	V		J. Street	2/10/00: 5B Turnover-1.
RM_5B_02	1372	20	Insert a number of granules in rapid succession to trigger a very large number of acquire actions for several events. The number of granules inserted must be large enough to cause subscription actions to be queued. The total number of subscription actions must be large enough to allow testers to exercise an SDSRV fault before the subscription actions are worked off. Warm restart the SDSRV before all actions are complete. Verify that none of the triggered acquire actions are lost and that none of them are submitted more than once.	FC	5B	1908	5B10020	Persistent Queuing of Subscription Actions	5B	VATC	V		J. Street	2/10/00: 5B Turnover-1.
RM_5B_02	1373	30	Insert a number of granules in rapid succession to trigger a very large number of acquire actions for several events. The number of granules inserted must be large enough to cause subscription actions to be queued. The total number of subscription actions must be large enough to allow testers to exercise an SDSRV fault before the subscription actions are worked off. Terminate SDSRV execution before all actions are complete. Restart the SDSRV after the expiration of the SBSRV configured retry time period for acquire actions. Verify that none of the triggered acquire actions are lost and that none of them are submitted more than once.	FC	5B	1908	5B10020	Persistent Queuing of Subscription Actions	5B	VATC	V		J. Street	2/10/00: 5B Turnover-1.

RM_5B_0 2	1374	40	Insert a number of granules in rapid succession to trigger a very large number of acquire actions for several events. The number of granules inserted must be large enough to cause subscription actions to be queued. The total number of subscription actions must be large enough to allow testers to exercise an SBSRV fault before the subscription actions are worked off. Warm restart the SBSRV before all actions are complete. Verify that none of the triggered acquire actions are lost and that none of them are submitted more than once.	FC	5B	1908	5B1002 0	Persistent Queuing of Subscription Actions	5B	VATC	NV	25582 (3)	J. Street	2/10/00: 5B Turnover-1: Duplicate email notification when warm start subscription server. NCR 25582(2).
RM_5B_0 2	1375	50	Verify that an operator can list the actions and trigger information in the warm restart action table.	FC	5B	1908	5B1002 0	Persistent Queuing of Subscription Actions	5B	VATC	V		J. Street	2/10/00: 5B Turnover-1.
RM_5B_0 2	1376	60	Verify that an operator can delete an action in the warm restart action table.	FC	5B	1908	5B1002 0	Persistent Queuing of Subscription Actions	5B	VATC	V		J. Street	2/10/00: 5B Turnover-1.
RM_5B_0 2	1377	70	Verify that an operator can update an action in the warm restart action table.	FC	5B	1908	5B1002 0	Persistent Queuing of Subscription Actions	5B	VATC	V		J. Street	2/10/00: 5B Turnover-1.
RM_5B_0 2	1378	80	Verify that the SBSRV retains trigger request information for the configured amount of time in the trigger information table; and that the information is deleted thereafter.	FC	5B	1908	5B1002 0	Persistent Queuing of Subscription Actions	5B	VATC	V		J. Street	2/10/00: 5B Turnover-1.
RM_5B_0 3	1653	10	Verify correct logging of ASTGW start-up and shutdown.	FC	5B	1919	5B1201 0	ASTER On-Demand (ASTER L1B)	5B	VATC	V		G. Iona	4/20/00: 5B Turnover-3.
RM_5B_0 3	1654	20	GDS INTERFACE TEST. Perform an ASTER directory search. Verify the results and correct logging.	FC	5B	1919	5B1201 0	ASTER On-Demand (ASTER L1B)	5B	VATC	V		G. Iona	4/20/00: 5B Turnover-3.
RM_5B_0 3	1655	30	GDS INTERFACE TEST. Perform an inventory search ASTER L1A at GDS for inventory searching. The search result must be large enough to exercise the chunking protocol specified in the ECS/ASTER GDS ICD. Verify the results, the chunking, and correct logging.	FC	5B	1919	5B1201 0	ASTER On-Demand (ASTER L1B)	5B	VATC	V		J. Street	4/20/00: 5B Turnover-3: NCR 26516(2). Need to check with Guy Swope (Development), potential NCR. 5/9/00: changed status from NV to NT (G. Iona 5/9 email). 5/10/00: 5B Turnover-3: NCR 26516(2) and criterion were successfully Verified.
RM_5B_0 3	1656	40	GDS INTERFACE TEST. Obtain an integrated browse for an ASTER L1A granule in an ASTER L1A GDS search result. Verify the results and correct logging.	FC	5B	1919	5B1201 0	ASTER On-Demand (ASTER L1B)	5B	VATC	V		G. Iona	4/20/00: 5B Turnover-3.

RM_5B_03	1657	50	GDS INTERFACE TEST. Order one ASTER L1A granule from the GDS. Verify the results and correct logging.	FC	5B	1919	5B12010	ASTER On-Demand (ASTER L1B)	5B	VATC	V		G. Iona	4/20/00: 5B Turnover-3: Retest criteria after Development explained operation. 4/25/00: 5B Turnover-3: Criterion verified on 4/25.
RM_5B_03	1658	60	GDS INTERFACE TEST. Submit several ASTER GDS requests concurrently to verify that the ASTGW can handle multiple concurrent requests, and that logging distinguishes among the entries for different requests.	FC	5B	1919	5B12010	ASTER On-Demand (ASTER L1B)	5B	VATC	V		G. Iona	4/20/00: 5B Turnover-3.
RM_5B_03	1659	70	GDS INTERFACE TEST. Verify that the ASTGW logs its connections with the GDS as required.	FC	5B	1919	5B12010	ASTER On-Demand (ASTER L1B)	5B	VATC	V		G. Iona	4/20/00: 5B Turnover-3.
RM_5B_03	1660	80	GDS INTERFACE TEST. Perform multiple concurrent searches. Verify that the ASTGW can handle multiple concurrent requests.	FC	5B	1919	5B12010	ASTER On-Demand (ASTER L1B)	5B	VATC	V		G. Iona	4/20/00: 5B Turnover-3.
RM_5B_03	1661	90	Start the ODFRM interface with the ASTER L1A inventory search result screen still open. Logged in as a user authorized to order ASTER L1B on-demand, submit two orders pasting GDS ASTER L1A granule Ids into the order form from the inventory search result screen. Verify the following: * a login prompt is displayed and can be used to login as a registered ECS user * e-mail notifications are received for both orders that supply the order ID * contact information can be supplied by entering it into the form, and is defaulted to the information contained in the user profile if omitted * the MSS GUI flags the order as 'on-demand' and displays the correct status	FC	5B	1919	5B12010	ASTER On-Demand (ASTER L1B)	5B	VATC	V		G. Iona	4/20/00: 5B Turnover-3.
RM_5B_03	1662	100	Verify that the ODFRM interface will display valid values and their defaults for ASTER L1B processing parameters: * Map Projection: Universal Transverse Mercator (default) Lambert Conformal Conic Polar Stereographic Space Oblique Mercator Uniform Lat/Lon * Resampling: Cubic Convolution (default) Nearest Neighbor Bilinear Interpolation	FC	5B	1919	5B12010	ASTER On-Demand (ASTER L1B)	5B	VATC	V		G. Iona	4/20/00: 5B Turnover-3.
RM_5B_03	1663	110	Ingest two non-standard L1B and a standard L1B, all for the same observation time. Only one of the non-standard L1B matches a submitted order. Verify the following: * the non-standard L1B granules will not trigger the routine higher-level ASTER processing * the on-demand L1B granule is correctly matched up with its order and an e-mail notification is sent to the specified contact address; the other on-demand L1B granule is not matched up and causes no further action * the ECS order tracking status is updated correctly	FC	5B	1919	5B12010	ASTER On-Demand (ASTER L1B)	5B	VATC	V		G. Iona	4/20/00: 5B Turnover-3.

RM_5B_03	1664	120	Use the MSS GUI to cancel an ASTER on-demand request. Verify the following: * no e-mail notification is sent to the user by ECS. * the order status is updated correctly * PLS recognizes the status change (i.e. the order is deleted after the appropriate time)	FC	5B	1919	5B12010	ASTER On-Demand (ASTER L1B)	5B	VATC	V		J. Street	4/20/00: 5B Turnover-3. Status not updated. Later determined that steps were missing from test procedure. 5/3/00: 5B Turnover-3.
RM_5B_03	1665	130	Start the ODFRM interface with the ASTER L1A inventory search result screen still open. Logged in as a user not authorized to order ASTER L1B on-demand, submit an orders pasting one GDS ASTER L1A granule Id into the order form from the inventory search result screen. Verify that the order is rejected with the appropriate error response.	EC	5B	1919	5B12010	ASTER On-Demand (ASTER L1B)	5B	VATC	V		G. Iona	4/20/00: 5B Turnover-3.
RM_5B_03	1666	140	Start the ODFRM interface with the ASTER L1A inventory search result screen still open. Log in as a user authorized to order ASTER L1B on-demand and submit an orders pasting three GDS ASTER L1A granule Id into the order form from the inventory search result screen. Verify that the order is rejected with the appropriate error response (the form should permit only one granule at a time to be specified as input).	EC	5B	1919	5B12010	ASTER On-Demand (ASTER L1B)	5B	VATC	V		G. Iona	4/20/00: 5B Turnover-3.
RM_5B_03	1667	150	Verify that it is not possible to submit an L1B on-demand order without logging in.	EC	5B	1919	5B12010	ASTER On-Demand (ASTER L1B)	5B	VATC	V		G. Iona	4/20/00: 5B Turnover-3.
RM_5B_03	1669	170	GDS INTERFACE TEST. Interrupt the ASTGW-GDS connection. Logged in as a user authorized to order ASTER L1B on-demand, submit an L1B order. Verify that an appropriate error is returned to the user because the ASTGW cannot submit the order to the GDS, and that the appropriate logging takes place.	EC	5B	1919	5B12010	ASTER On-Demand (ASTER L1B)	5B	VATC	V		G. Iona	4/20/00: 5B Turnover-3.
RM_5B_04	1580	10	Using the EDG client search for DEM inputs in ECS. Verify that the L1A/L1B attributes defining whether a DEM can be generated (presence of stereographic bands) can be displayed in the V0 search result, and can be used for searching.	FC	5B	1910	5B12020	ASTER On-Demand Digital Elevation Model (DEM)	5B	VATC	V		J. Street	3/29/00: 5B Turnover-2: Stereographic bands data not available. 4/26/00: 5B Turnover-3: No NCR (T. Hines).
RM_5B_04	1581	20	With the V0 search result screen open, bring up the ODFRM order forms. Submit two DEM orders by copying / pasting the granule geoIDs from the V0 search result into the ODFRM forms. Verify the following: * a login prompt is displayed and can be used to login as a registered ECS user * contact and shipping information can be supplied by entering it into the form, and is defaulted to the information contained in the user profile if omitted * media distribution options can be specified and match what is available at the ECS DAACs * e-mail notifications are received for both orders that supply the order ID * e-mail notifications for both orders are sent to the operator e-mail address, and contain the details of the order including order ID and contact information. * the MSS GUI flags the order as 'on-demand' and displays the correct status	FC	5B	1910	5B12020	ASTER On-Demand Digital Elevation Model (DEM)	5B	VATC	V		J. Street	3/29/00: 5B Turnover-2.

RM_5B_04	1582	30	Verify that the ODFRM interface will display valid values and their defaults for ASTER DEM processing parameters, performs the specified input validations, and returns input error indications to the user.	FC	5B	1910	5B12020	ASTER On-Demand Digital Elevation Model (DEM)	5B	VATC	V		J. Street	3/29/00: 5B Turnover-2. NCRs 25980(2) and 26221(2). 4/24/00: 5B Turnover-3: Both NCRs 25980(2) and 26221(2) were verified successfully.
RM_5B_04	1583	40	Ingest one of the DEM granules that have been ordered into ECS, after having updated its meta data to include the OrderID. Verify the following: * the on-demand DEM granule is correctly matched up with its order and an order for the granule is placed on behalf of the user * the priority of the request matches the priority configured for on-demand processing orders * the ECS order tracking status is updated correctly	FC	5B	1910	5B12020	ASTER On-Demand Digital Elevation Model (DEM)	5B	VATC	V		J. Street	3/29/00: 5B Turnover-2.
RM_5B_04	1584	50	Use the MSS GUI to cancel the second DEM order. Verify that ingesting this DEM with the orderID in the meta data set to the order ID of the cancelled order will not trigger the submission of a data order.	FC	5B	1910	5B12020	ASTER On-Demand Digital Elevation Model (DEM)	5B	VATC	V		J. Street	3/29/00: 5B Turnover-2.
RM_5B_04	1585	60	Enter an invalid geoID. Show that this will not cause an ECS fault, even if the order is initially accepted.	EC	5B	1910	5B12020	ASTER On-Demand Digital Elevation Model (DEM)	5B	VATC	V		J. Street	3/29/00: 5B Turnover-2.
RM_5B_04	1586	70	Verify that it is not possible to submit a DEM on-demand processing order without logging in as a registered ECS user.	EC	5B	1910	5B12020	ASTER On-Demand Digital Elevation Model (DEM)	5B	VATC	V		J. Street	3/30/00: 5B Turnover-2.
RM_5B_04	1587	80	Show system can support the requesting, forwarding and ingest of the results of one ASTER DEM request per day.	PC	5B	1910	5B12020	ASTER On-Demand Digital Elevation Model (DEM)	5B	VATC	V		J. Street	3/30/00: 5B Turnover-2.
RM_5B_05	1588	10	Register a large number of possible combinations of processing parameters that select a specific PGE profile for automated ASTER on-demand higher level processing in the PGE database. Verify the following: * they all can be registered correctly. * one and only one profile can be designated the default profile * duplicate parameter combinations cannot be registered as separate profiles * the time delay for deletion of the output products can be specified (in weeks)	FC	5B	1925	5B12030	ASTER On-Demand Higher Level Products	5B	VATC	V		T. Gresko	3/31/00: 5B Turnover-2.

RM_5B_05	1589	20	Using the EDG client, search the data server for L1B granules. With the V0 search result screen open, bring up the ODFRM order forms. Submit higher level product orders by copying / pasting the granule geolDs from the V0 search result into the ODFRM forms. The orders must satisfy the following criteria: * Each of the on-demand ASTER higher level products must be ordered and produced at least once * At least one of the on-demand ASTER higher level products must be ordered twice by different users such that its processing is triggered at the same time * At least two orders are for at least three granules; in each case, all inputs for one granule are immediately available, whereas inputs for the remaining granules are missing. Verify the following: * a login prompt is displayed and can be used to login as a registered ECS user * contact and shipping information can be supplied by entering it into the form, and is defaulted to the information contained in the user profile if omitted	FC	5B	1925	5B12030	ASTER On-Demand Higher Level Products	5B	VATC	V		T. Gresko	3/31/00: 5B Turnover-2.
RM_5B_05	1590	30	Verify that the ODFRM interface * Displays valid values and their defaults for the processing parameters applicable to the order. * Does not display prompts for processing parameters that do not apply to the order. * Performs the specified input validations, and returns input error indications t the user.	FC	5B	1925	5B12030	ASTER On-Demand Higher Level Products	5B	VATC	V		T. Gresko	3/31/00: 5B Turnover-2.
RM_5B_05	1591	40	Verify the following: * Requests for higher level granules for which all inputs are immediately available are processed immediately, regardless of whether the inputs for other granules submitted with the same order are available, and subject only to the availability of on-demand processing slots. * The state of these granules is correctly reflected in the MSS GUI as each granule moves through processing. * Requests for higher level granules for which all inputs are not available are held back and their state is correctly reflected in the MSS GUI as 'Waiting for data'.	FC	5B	1925	5B12030	ASTER On-Demand Higher Level Products	5B	VATC	V		T. Gresko	3/31/00: 5B Turnover-2.
RM_5B_05	1592	50	Ingest missing inputs for granules in a multi-granule order that are waiting for data. Verify the following: * The data processing requests are released into processing. * The jobs are submitted into Autosys on a first-in, first-out bases. * The MSS request status tracks the progress of the granules through the PDPS and can be displayed correctly via the MSS GUI.	FC	5B	1925	5B12030	ASTER On-Demand Higher Level Products	5B	VATC	V		T. Gresko	3/31/00: 5B Turnover-2.
RM_5B_05	1593	60	Verify that all products are produced in accordance with the specified processing parameters; and that orders from different users for the same product can be processed concurrently by DPS without problems.	FC	5B	1925	5B12030	ASTER On-Demand Higher Level Products	5B	VATC	V		T. Gresko	3/31/00: 5B Turnover-2.

RM_5B_05	1594	70	Verify that on-demand products are submitted for distribution once their production completes, and that the distribution request are assigned the priority configured for on-demand requests.	FC	5B	1925	5B12030	ASTER On-Demand Higher Level Products	5B	VATC	V		T. Gresko	3/31/00: 5B Turnover-2.
RM_5B_05	1595	80	Verify that concurrent processing of the same on-demand product by two different users completes normally, and the distribution requests are successful.	FC	5B	1925	5B12030	ASTER On-Demand Higher Level Products	5B	VATC	V		T. Gresko	3/31/00: 5B Turnover-2.
RM_5B_05	1596	90	Verify that all output products of on-demand processing are correctly flagged for deletion by the PDPS deletion server. (Note: the deletion server was tested during 5A and its functions do not need to be re-tested as part of this criterion)..	FC	5B	1925	5B12030	ASTER On-Demand Higher Level Products	5B	VATC	V		T. Gresko	3/31/00: 5B Turnover-2.
RM_5B_05	1597	100	Verify that the on-demand processing slots can be changed via configuration, and that on-demand processing jobs are submitted into Autosys in accordance with the specified limit.	FC	5B	1925	5B12030	ASTER On-Demand Higher Level Products	5B	VATC	V		T. Gresko	3/31/00: 5B Turnover-2.
RM_5B_05	1598	110	Verify that the on-demand processing priority can be changed by the operator such that on-demand processing jobs take precedence over routine processing jobs.	FC	5B	1925	5B12030	ASTER On-Demand Higher Level Products	5B	VATC	V		T. Gresko	3/31/00: 5B Turnover-2.
RM_5B_05	1599	120	Verify that the MSS GUI can be used to perform the following functions: * display the on-demand orders for a given user and their status	FC	5B	1925	5B12030	ASTER On-Demand Higher Level Products	5B	VATC	NV	26208 (2)	T. Gresko	3/31/00: 5B Turnover-2: NCR 26208(3).
RM_5B_05	1600	130	Verify that the MSS script can be used to list the current on-demand request queue, sorted by one of the following: status, user id, order_id, ESDT id, or date/time queued.	FC	5B	1925	5B12030	ASTER On-Demand Higher Level Products	5B	VATC	V		T. Gresko	3/31/00: 5B Turnover-2: NCR 26274(3). 4/24/00: 5B Turnover-3: Criterion and NCR 26274(3) successfully verified (J. Street).
RM_5B_05	1601	140	Verify that an operator can list the contents of an on-demand order via a script.	FC	5B	1925	5B12030	ASTER On-Demand Higher Level Products	5B	VATC	V		T. Gresko	3/31/00: 5B Turnover-2.
RM_5B_05	1602	150	Use the MSS GUI to cancel an on-demand request waiting for data. Verify that the request will not be executed, and that its new state is correctly reflected in the PDPS database.	FC	5B	1925	5B12030	ASTER On-Demand Higher Level Products	5B	VATC	V		T. Gresko	3/31/00: 5B Turnover-2.
RM_5B_05	1603	160	Use the MSS GUI to cancel an on-demand request being processed. Verify that the request will complete execution but the outputs will not be distributed, and that its new state is correctly reflected in the PDPS database.	FC	5B	1925	5B12030	ASTER On-Demand Higher Level Products	5B	VATC	V		T. Gresko	3/31/00: 5B Turnover-2.
RM_5B_05	1604	170	Use the PDPS GUI to cancel an on-demand request while it is being processed. Verify that the MSS GUI correctly reflects the new state as "Canceled", and that its new state is correctly reflected in the PDPS database.	FC	5B	1925	5B12030	ASTER On-Demand Higher Level Products	5B	VATC	V		T. Gresko	3/31/00: 5B Turnover-2.
RM_5B_05	1605	180	Verify that the expiration time period for on-demand processing requests can be configured.	FC	5B	1925	5B12030	ASTER On-Demand Higher Level Products	5B	VATC	V		T. Gresko	3/31/00: 5B Turnover-2.

RM_5B_05	1606	190	Verify that a check is performed for completed / terminated orders based on an operator configurable time interval. Verify that orders that were completed are removed from the PDPS a configured time period past their completion time (as recorded in the MSS order tracking database). Verify that orders that are only partially complete are not removed from the PDPS database even if some of the requests completed prior to the cut-off date.	FC	5B	1925	5B12030	ASTER On-Demand Higher Level Products	5B	VATC	V		T. Gresko	3/31/00: 5B Turnover-2.
RM_5B_05	1607	200	Cause the expiration of a complete order. Verify the following: * The request expires at the appropriate time. * The data processing request is removed from the processing queue. * The user is notified via e-mail of the expiration, and the e-mail includes the configured preamble, the order ID, and the reason for expiration. * The expired state is correctly reflected by the MSS order tracking GUI for both the order and the request.	EC	5B	1925	5B12030	ASTER On-Demand Higher Level Products	5B	VATC	V		T. Gresko	3/31/00: 5B Turnover-2.
RM_5B_05	1608	210	Cause the expiration of one of the requests in a multi-request order, whose other requests complete successfully. Verify the following: * The data processing request is removed from the processing queue * The user is notified via e-mail of the expiration, and the e-mail includes the configured preamble and the order ID, and the reason for expiration. * The expired state of the request is correctly reflected by the MSS order tracking GUI * The termination state of the order is correctly reflected by the MSS order tracking GUI	EC	5B	1925	5B12030	ASTER On-Demand Higher Level Products	5B	VATC	V		T. Gresko	3/31/00: 5B Turnover-2.
RM_5B_05	1609	220	Cause the failure of an on-demand job during processing. Verify the following: * The user is notified of the failure via an e-mail message that includes the configured preamble, the orderID, and identifies the failure. * The failed state is correctly reflected by the MSS order tracking GUI as 'Aborted'. * The failed state is correctly reflected in the planning database.	EC	5B	1925	5B12030	ASTER On-Demand Higher Level Products	5B	VATC	V		T. Gresko	3/31/00: 5B Turnover-2.
RM_5B_05	1610	230	Shut down the MSS order tracking server while on-demand orders are in progress. Verify the retry behavior of the PLANG and PRONG components that attempt to update request status.	EC	5B	1925	5B12030	ASTER On-Demand Higher Level Products	5B	VATC	V		T. Gresko	3/31/00: 5B Turnover-2.
RM_5B_05	1611	240	Shut down the Job Manager while PLANG is processing on-demand request submissions. Verify the retry behavior of the PLANG component submitting the jobs into processing.	EC	5B	1925	5B12030	ASTER On-Demand Higher Level Products	5B	VATC	V		T. Gresko	3/31/00: 5B Turnover-2.
RM_5B_05	1612	250	Attempt to submit an on-demand processing order without logging in. Verify that this is not possible.	EC	5B	1925	5B12030	ASTER On-Demand Higher Level Products	5B	VATC	V		T. Gresko	3/31/00: 5B Turnover-2.
RM_5B_05	1613	260	Attempt to login and submit an on-demand processing order using a userID for which there is no user profile. Verify that this is not possible.	EC	5B	1925	5B12030	ASTER On-Demand Higher Level Products	5B	VATC	V		T. Gresko	3/31/00: 5B Turnover-2.

RM_5B_05	1614	270	Show that system can support the requesting, processing and distribution of the results of 180 ASTER on-demand product requests per day. NOTE: The number of requests (180) was determined by taking 50% of the number of daily on-demand ASTER requests in the Feb 96 Technical Baseline. The performance test should assume the requests are split approximately equally amongst the various on-demand higher-level products available to be requested.	PC	5B	1931	V1614	EVR for Criteria Key 1614	5B	PVC	V		S. Donohue	4/24/00: 5B.01. Issued 450 ASTER On Demand Orders during a 24 hour cycle.
RM_5B_06	1423	10	Using the EDG client, perform a search for science granules that are associated with a browse image (BROWSE ONLY). Request integrated browse for selected granules. Verify that only granules with BROWSE are displayed in the search result and that the browse granules are delivered correctly.	FC	5B	1909	5B10030	V0-ECS Gateway (Integrated Browse and Enhancements)	5B	VATC	V		T. Gresko	1/21/00: 5B Turnover-1. Criterion was NV on 1/21/00 with NCR 25090(2). 2/9/00: 5B Turnover-1. NCR 25090 fix was delivered and criterion status is changed to V.
RM_5B_06	1424	20	Show that ECS can provide the response to integrated browse request within 58 seconds. The measured response period should cover the time from the receipt of the search request by the V0 Gateway to the time that the first byte of the integrated browse result is forwarded out of the V0 Gateway. A database with at least 1000 browse granules must be used for this test.	PC	5B	1930	V1424	EVR for Criteria Key 1424	5B	PVC	V		S. Donohue	4/17/00: 5B.01. Executed 492 browse requests through EDG, collected and plotted stats on execution time.
RM_5B_07	1539	10	Exercise the V0 export capability in the DDICT Maintenance tool for ESDT that include PSA. Verify (through manual inspection) that it correctly exports the list of core metadata attributes and the PSA defined for the selected ESDT, and that an extended attribute definitions file was created.	FC	5B	1898	5B08010	Maintenance Tool Management (ASTER)	5B	VATC	V		J. Street	1/27/00: 5B Turnover-1.
RM_5B_07	1540	20	Use the DDICT Maintenance Tool at the SMC to define valids mapping between ECS and ASTER (both directions).	FC	5B	1898	5B08010	Maintenance Tool Management (ASTER)	5B	VATC	V		J. Street	1/27/00: 5B Turnover-1.
RM_5B_07	1541	30	Use the DDICT Maintenance Tool at a DAAC to define valids mappping between ECS and ASTER (both directions) compatible with those defined at the SMC.	FC	5B	1898	5B08010	Maintenance Tool Management (ASTER)	5B	VATC	V		J. Street	1/27/00: 5B Turnover-1.
RM_5B_07	1542	40	Use the DDICT Maintenance Tool at a DAAC to export the mapped collections into a transfer file for use by the ASTGW CI's GDS to ECS gateway at the SMC. Verify the correctness of the contents of the file through manual inspection.	FC	5B	1898	5B08010	Maintenance Tool Management (ASTER)	5B	VATC	V		J. Street	1/27/00: 5B Turnover-1.

RM_5B_07	1543	50	Use the DDICT Maintenance Tool at the SMC to import the transfer file. Using the DDICT Maintenance Tool, verify that the collections have been imported correctly and that pre-existing mappings were not altered.	FC	5B	1898	5B08010	Maintenance Tool Management (ASTER)	5B	VATC	V		G. Iona	4/26/00: 5B Turnover-3. 5/3/00: Open question for Development as to why DAAC mappings are not included when Imported into VATC/SMC. This appears to conflict with criteria. 5/9/00: 5B Turnover-3: Update status to 'V'. Copy of 5/8/00, 16:01 email message from Glenn Iona is found in test folder.
RM_5B_07	1544	60	Use the DDICT Maintenance Tool at the SMC to create a valids exchange file for the ASTER GDS. Verify the correctness of the file.	FC	5B	1898	5B08010	Maintenance Tool Management (ASTER)	5B	VATC	V		G. Iona	4/26/00: 5B Turnover-3.
RM_5B_07	1545	70	GDS INTERFACE TEST. Perform a valids file exchange via e-mail in both directions, and verify the MSS e-mail message header handling.	FC	5B	1898	5B08010	Maintenance Tool Management (ASTER)	5B	VATC	V		T. Gresko	5/10/00: 5B Turnover-3. NCR 25139(2) is now verified.
RM_5B_07	1546	80	GDS INTERFACE TEST. Use the DDICT Maintenance Tool at the 'EDC site' to import a GDS valids file into the data dictionary for use by the ASTGW. Use the DDICT Maintenance Tool to verify the correctness of the import by manual inspection of selected entries. Note: correctness of the import will be verified by exercising the valids and their mapping in directory and inventory searches handled by the ASTGW in testxx performed in tickets RM_5B_03 and RM_5B_09.	FC	5B	1898	5B08010	Maintenance Tool Management (ASTER)	5B	VATC	V		G. Iona	4/26/00: 5B Turnover-3.
RM_5B_08	1491	10	Use the EDG client to submit searches that include QA Attributes and other Core Metadata Attributes, as well as Product-Specific Attributes as part of the search criterion. The searches must observe the limits on the number of additional attributes that can be included in a search and that is imposed by the EDG client. Verify that: * QA Attributes can be included in the search criteria. * Other Core Metadata (beyond those covered by the basic V0 protocol) can be included in the search criteria. * PSA of type integer, string, and floating point can be included in the search criteria. * Verify that the searches return the correct results. * Verify that search conditions which do not match any granules in the inventory result in an empty result set.	FC	5B	1909	5B10030	V0-ECS Gateway (Integrated Browse and Enhancements)	5B	VATC	NT		T. Gresko	4/7/00: 5B Turnover-3: The 'Core Metadata' and 'PSA type floating point' items did not work. The other items enumerated in this FC did work. NCRs 26055(3), 26348(2). 4/24/00: 5B Turnover-3: NCR 26055(3) is applicable to second bullet in criterion 'Other Core Metadata'; NCR 26348(2) was verified (third bullet in criterion). 5/9/00: 5B Turnover-3: Since NCR 26055 is related to EDG, which is a non-ECS-developed tool, criteria status changed to NT.

RM_5B_08	1492	20	Use the EDG client to inspect the results returned by the searches. Verify that: * QA Attributes can be inspected. * Other core metadata attributes can be inspected. * PSA of type integer, string, and floating point can be inspected.	FC	5B	1909	5B10030	V0-ECS Gateway (Integrated Browse and Enhancements)	5B	VATC	V		T. Gresko	4/7/00: 5B Turnover-3: The 'PSA type floating point' couldn't be tested because its search didn't work. But the other two items in the FC did work. 4/24/00: 5B Turnover-3: Third bullet in criterion is verified (J. Street).
RM_5B_08	1493	30	Note one of the granule identifiers that are returned by the searches. Use the granule identifier in a search by granule ID. Verify that the correct granule is returned.	FC	5B	1909	5B10030	V0-ECS Gateway (Integrated Browse and Enhancements)	5B	VATC	V		J. Street	4/5/00: 5B Turnover-3.
RM_5B_08	1494	40	Order the granule for FTPPush.	FC	5B	1909	5B10030	V0-ECS Gateway (Integrated Browse and Enhancements)	5B	VATC	V		T. Gresko	1/21/00: 5B Turnover-1. NCR 25145(2). 4/24/00: 5B Turnover-3: NCR 25145(2) was verified (J. Street).
RM_5B_08	1495	50	Show that the system can provide response to search request against one ESDT by multiple attributes including a spatial search area based on a lat/long box within 8 seconds. The 8 seconds is in accordance with Table 7-1 of the F&PRS. The measured response period should cover the time from the receipt of the search request by the V0 Gateway to the time that the first byte of the result of the search is forward out of the V0 Gateway. The number of granules in the database for the ESDT should be 100K and the test should use a resultant set of one granule.	PC	5B									

RM_5B_09	1547	10	Using a GDS Client simulator, send a directory search to the ASTGW. The directory search must be phrased such that it returns collections archived at different ECS sites, including EDC(Landsat scenes).	FC	5B	1915	5B10040	ASTER Gateway	5B	VATC	V		G. Iona	4/25/00: 5B Turnover-3
RM_5B_09	1548	20	Using a GDS Client simulator, send inventory searches to the ASTGW. The inventory searches must meet the following characteristics: * One search shall be for Landsat 7 scenes * One search shall be for routine ASTER higher level products * One search shall span collections that are being archived at two different sites.	FC	5B	1915	5B10040	ASTER Gateway	5B	VATC	V		G. Iona	4/25/00: 5B Turnover-3
RM_5B_09	1549	30	Using a GDS Client simulator, send an inventory search to the ASTGW that produces a result set of 100 granules to observe result set chunking. Verify that the ASTGW returns the result set correctly and in chunks, and that a Quit request is honored.	FC	5B	1915	5B10040	ASTER Gateway	5B	VATC	V		G. Iona	4/25/00: 5B Turnover-3
RM_5B_09	1550	40	Using a GDS Client simulator, issue integrated browse requests and verify their correct receipt. The browse requests must meet the following characteristics: * One request must be for a Landsat 7 browse granule * One request must be for a browse granule other than Landsat 7.	FC	5B	1915	5B10040	ASTER Gateway	5B	VATC	V		G. Iona	4/25/00: 5B Turnover-3
RM_5B_09	1551	50	Using the GDS Client simulator, obtain a price estimate for: * Non-Landsat data (price must be zero) * one Landsat 7 scene * three Landsat 7 scenes and * ten Landsat 7 scenes.	FC	5B	1915	5B10040	ASTER Gateway	5B	VATC	V		T. Gresko	2/24/00: 5B Turnover-1. Two Sev-3 NCRs written during test: 25846 and 25857. This is due to inconsistencies found in Log files. They do not directly affect the FC criteria.
RM_5B_09	1552	60	Using the GDS Client simulator, issue a product order for three Landsat 7 fixed scenes via 8 mm tape. Verify the following: * The orders are passed correctly via a simulated DORRAN interface to the DAAC's V0 Gateway for submission to the data server. * The orders are distributed with the priority specified in the user profile used. * The Distribution Notices are correctly sent. * The request states are correctly updated and observable via the MSS GUI that resides at the DAAC where the requested data is ordered. * The request states are correctly updated and observable via the MSS GUI at the SMC.	FC	5B	1915	5B10040	ASTER Gateway	5B	VATC	NV	26739 (2)	S. Wong	5/11/00: 5B Turnover-3: 8-mm acquires result in invalid messages on system console. NCR 26739(2).
RM_5B_09	1553	70	Using the GDS Client simulator, issue an 8mm tape product order for a product other than Landsat 7. As the order is being processed, verify the following: * The request and order states are correctly updated and observable via the MSS GUI that resides at the DAAC where the requested data is archived. * The request states are correctly updated and observable via MSS GUI at the SMC.	FC	5B	1915	5B10040	ASTER Gateway	5B	VATC	V		S. Wong	5/11/00: 5B Turnover-2.

RM_5B_09	1554	80	Using the GDS Client simulator, issue a product order that includes Landsat 7 scenes as well as MODIS products. The MODIS order should include an 8mm tape line item. As the order is being processed, verify that * There is only one order each generated at each DAAC. * The request and order states are correctly updated and observable via the MSS GUI that resides at the DAAC where the requested data is archived. * From the MSS GUI at the SMC verify that the local order reflects requests. * The states of the requests and order are correctly updated and are observable via the MSS GUI at the SMC. * The order IDs and request IDs that have been assigned include the DAAC identifier to make them ECS-wide unique. The Home DAAC has been correctly identified at both sites as being the SMC.	FC	5B	1915	5B10040	ASTER Gateway	5B	VATC	V		S. Wong	5/11/00: 5B Turnover-2.
RM_5B_09	1555	90	Use the GDS Client simulator to obtain the status of the order status at various points during the processing cycle and verify that the status is correctly translated and transmitted by the ASTGW to the GDS simulator.	FC	5B	1915	5B10040	ASTER Gateway	5B	VATC	V		S. Wong	5/11/00: 5B Turnover-2.
RM_5B_09	1556	100	Use the GDS Client simulator to submit a Product Cancel Request for a previously submitted order and verify that a status code of 10 is returned.	FC	5B	1915	5B10040	ASTER Gateway	5B	VATC	V		T. Gresko	2/24/00: 5B Turnover-1.
RM_5B_09	1557	110	Use the GDS Client simulator to submit Product Update Information for a previously submitted order and verify that a Product Status Update Acknowledge is returned with a status code of 10.	FC	5B	1915	5B10040	ASTER Gateway	5B	VATC	V		T. Gresko	2/24/00: 5B Turnover-1.
RM_5B_09	1558	120	Verify that the ASTGW logs start-up, shut-down, and other GDS-ECS gateway activities as specified in the L4 requirements.	FC	5B	1915	5B10040	ASTER Gateway	5B	VATC	VW	26538 (3)	G. Iona	4/25/00: 5B Turnover-3. NCR 26538(3).
RM_5B_09	1559	130	Verify that the ASTGW logs failed and successful authentications, and uses the default authentication when no authenticator is provided in the request..	FC	5B	1915	5B10040	ASTER Gateway	5B	VATC	V		J. Street	5/3/00: 5B Turnover-3.
RM_5B_09	1560	140	Using the GDS Client simulator, submit multiple requests concurrently. Verify that the ASTGW handles them correctly, and that log entries distinguish among the different requests.	FC	5B	1915	5B10040	ASTER Gateway	5B	VATC	V		G. Iona	4/25/00: 5B Turnover-3.
RM_5B_09	1561	150	Shutdown a selected DAAC's V0 Gateway. Using the GDS Client simulator, send a search, product order, and browse request for products to the selected DAAC. Verify that an appropriate failure status is returned by the ASTGW and that the request failures are logged by the ASTGW. Verify that the request state is correctly recorded and observable via the MSS GUI at the SMC, and correctly returned when a status request is submitted from the GDS Client simulator.	EC	5B	1915	5B10040	ASTER Gateway	5B	VATC	NV	26645 (3)	J. Street	5/3/00: 5B Turnover-3. NCR 26645(3) written for inappropriate error messages logged in the ASTER Gateway log: Step #2320.
RM_5B_09	1562	160	With all components operating normally and using the GDS Client simulator, send a product order. Shutdown the ASTGW after it submitted the product request, but before the DAAC's V0 Gateway returns the request acknowledgment. Verify that the order completes successfully and that the request state is correctly recorded and observable via the EDC MSS GUI.	EC	5B	1915	5B10040	ASTER Gateway	5B	VATC	V		J. Street	5/3/00: 5B Turnover-3.

RM_5B_09	1563	170	Submit an inventory search from the GDS Client simulator to the ASTGW that includes MODIS collections at the DAAC where the requested data is archived. Shut down the GDS Client simulator before the search result is returned. Verify that the ASTGW correctly handles the fault.	EC	5B	1915	5B10040	ASTER Gateway	5B	VATC	V		J. Street	5/3/00: 5B Turnover-3.
RM_5B_09	1565	190	Submit an order from the GDS Client simulator to the ASTGW while the MSS user profile server is down. Verify that the ASTGW logs and returns an appropriate failure status after the configured retries fail, and recovers if the service is restored before then.	EC	5B	1915	5B10040	ASTER Gateway	5B	VATC	V		J. Street	5/3/00: 5B Turnover-3.
RM_5B_09	1566	200	Submit an order from the GDS Client simulator to the ASTGW while the MSS order tracking server is down. Verify that the ASTGW logs and returns an appropriate failure status after the configured retries fail, and recovers the request if the service is restored before then.	EC	5B	1915	5B10040	ASTER Gateway	5B	VATC	V		J. Street	5/3/00: 5B Turnover-3.
RM_5B_09	1567	210	Submit an order from the GDS Client simulator to the ASTGW while the Data Dictionary database is down. Verify that the ASTGW logs and returns an appropriate failure status.	EC	5B	1915	5B10040	ASTER Gateway	5B	VATC	V		T. Gresko	5/12/00: 5B Turnover-3.
RM_5B_10	1387	10	Insert a new ESDT. Verify that its QA Time range and QA independent access permission are both NULL.	FC	5B	1916	5B10050	Restricted Granule Access	5B	VATC	V		T. Gresko	2/16/00: 5B Turnover-1.
RM_5B_10	1388	20	Use an ESDT with a NULL QA Time range and a QA independent access permission of NULL. Use granules with all possible combinations of QA flag settings. Attempt to acquire the granules for FTPPull as a Non-NASA user. Verify the following: * Only the access rules within the QA Time period apply. * The access rules for the two QA flags are combined correctly. * All acquire attempts performed using user Ids authorized to access a granule succeed; and all acquire attempts performed using userIDs not authorized to access a granule fail. * All failed acquire attempts are logged by the SDSRV.	FC	5B	1916	5B10050	Restricted Granule Access	5B	VATC	V		T. Gresko	2/16/00: 5B Turnover-1.
RM_5B_10	1389	30	Use an ESDT with a NULL QA Time range and a QA independent access permission of NULL. Use granules with all possible combinations of QA flag settings. Attempt to acquire the granules for FTPPull as ECGuest. Verify that the accesses are treated as if they were done by a Non-NASA user.	FC	5B	1916	5B10050	Restricted Granule Access	5B	VATC	V		T. Gresko	2/16/00: 5B Turnover-1.
RM_5B_10	1390	40	Use an ESDT with a NULL QA Time range and a QA independent access permission of NULL. Use granules with all possible combinations of QA flag settings. Attempt to acquire the granules for FTPPull as a Regular NASA user. Verify the following: * Only the access rules within the QA Time period apply. * The access rules for the two QA flags are combined correctly. * All acquire attempts performed using user Ids authorized to access a granule succeed; and all acquire attempts performed using userIDs not authorized to access a granule fail. * All failed acquire attempts are logged by the SDSRV.	FC	5B	1916	5B10050	Restricted Granule Access	5B	VATC	V		T. Gresko	2/16/00: 5B Turnover-1.
RM_5B_10	1391	50	Update the QA Time range for an ESDT from NULL to some other value.	FC	5B	1916	5B10050	Restricted Granule Access	5B	VATC	V		T. Gresko	2/16/00: 5B Turnover-1.

RM_5B_1 0	1392	60	Use an ESDT with a non-NULL QA Time range and a QA independent access permission of NULL. Use granules with all possible combinations of QA flag settings, inside and outside the QA time period. Attempt to acquire the granules for FTPPull as a Non-NASA user. Verify the following: * The access rules for the correct time period are applied. * The applicable access rules for the two QA flag values are combined correctly * All acquire attempts performed using user Ids authorized to access a granule succeed; and all acquire attempts performed using userIDs not authorized to access a granule fail. * All failed acquire attempts are logged by the SDSRV.	FC	5B	1916	5B1005 0	Restricted Granule Access	5B	VATC	V		T. Gresko	2/16/00: 5B Turnover-1.
RM_5B_1 0	1393	70	Use an ESDT with a non-NULL QA Time range and a QA independent access permission of NULL. Use granules with all possible combinations of QA flag settings, inside and outside the QA time period. Attempt to acquire the granules for FTPPull as a Regular NASA user. Verify the following: * The access rules for the correct time period are applied. * The applicable access rules for the two QA flag values are combined correctly * All acquire attempts performed using user Ids authorized to access a granule succeed; and all acquire attempts performed using userIDs not authorized to access a granule fail. * All failed acquire attempts are logged by the SDSRV.	FC	5B	1916	5B1005 0	Restricted Granule Access	5B	VATC	V		T. Gresko	2/16/00: 5B Turnover-1.
RM_5B_1 0	1394	80	Use an ESDT with a non-NULL QA Time range and a QA independent access permission of NULL. Use granules with all possible combinations of QA flag settings. Attempt to acquire the granules for FTPPush as a Privileged NASA user. Verify that all acquire requests succeed.	FC	5B	1916	5B1005 0	Restricted Granule Access	5B	VATC	V		T. Gresko	2/16/00: 5B Turnover-1.
RM_5B_1 0	1395	90	Use an ESDT with a NULL QA Time range and a QA independent access permission of NULL. Place three subscriptions on the ESDT for FTP Push Acquire: one on behalf of a Non-NASA user; one on behalf of a Regular NASA user; one on behalf of a Privileged NASA User. Insert two granules with different combinations of QA flag settings such that one is accessible to Non-NASA users, Regular NASA users, and Privileged NASA users; and the other one is only accessible to Privileged NASA users. Verify that the requests succeed or are rejected in accordance with the access permissions implied by the QA Flags.	FC	5B	1916	5B1005 0	Restricted Granule Access	5B	VATC	V		T. Gresko	2/16/00: 5B Turnover-1.
RM_5B_1 0	1396	100	Update the QA independent access permissions for an ESDT from NULL to the value 'PR'. Verify the following using FTPPull acquire requests: * An acquire for a granule whose QA Flags would permit access by Non-NASA users fails if done as ECSGuest, but succeeds if performed as a Regular and Privileged NASA user. * An acquire for a Granule whose QA Flags prohibit access by a Regular NASA User does indeed fail if done as Regular NASA User.	FC	5B	1916	5B1005 0	Restricted Granule Access	5B	VATC	V		T. Gresko	2/16/00: 5B Turnover-1.

RM_5B_1 0	1397	110	Update the QA independent access permissions for an ESDT from 'PR' to the value 'P'. Verify the following using FTPPull acquire requests: * Acquire attempts for a granule whose QA Flags would permit access by non-NASA or Regular NASA users fail if done as a ECSSGuest or Regular NASA User. * The acquire attempt succeeds if performed as a Privileged NASA user..	FC	5B	1916	5B1005 0	Restricted Granule Access	5B	VATC	V		T. Gresko	2/16/00: 5B Turnover-1.
RM_5B_1 0	1398	120	Set the QA independent access permission of an ancillary ESDT used in science processing to 'P'. Kick-off a DPR that needs a granule from that ESDT as input. Verify that the DPR can acquire the granule.	FC	5B	1916	5B1005 0	Restricted Granule Access	5B	VATC	V		T. Gresko	2/16/00: 5B Turnover-1.
RM_5B_1 0	1399	130	Set the QA independent access permission of an expedited ASTER ESDT to 'P'. Cause the ASTER EDR e-mail gateway to acquire a granule from that ESDT. Verify that the request succeeds.	FC	5B	1916	5B1005 0	Restricted Granule Access	5B	VATC	V		T. Gresko	2/16/00: 5B Turnover-1.
RM_5B_1 0	1400	140	While the User profile server is down, perform an acquire request as a Regular NASA user for a granule that is accessible to all users. Verify that the acquire request succeeds.	EC	5B	1916	5B1005 0	Restricted Granule Access	5B	VATC	V		T. Gresko	2/16/00: 5B Turnover-1.
RM_5B_1 0	1401	150	While the User profile server is down, cause an acquire request to be submitted from a DPR. Verify that the acquire request succeeds.	EC	5B	1916	5B1005 0	Restricted Granule Access	5B	VATC	V		T. Gresko	2/16/00: 5B Turnover-1.
RM_5B_1 0	1402	160	Perform several acquire requests as a Privileged NASA user. Shut down the User Profile Server. While the User profile server is down, submit an acquire request as a Privileged NASA user for a granule that is not accessible to Non-NASA Users or Regular NASA Users but is accessible to Privileged NASA users. Verify that the acquire request is retried for the amount of time configured in the SDSRV configuration settings; and that it succeeds if the User Profile server is restarted before that time elapses.	EC	5B	1916	5B1005 0	Restricted Granule Access	5B	VATC	V		T. Gresko	2/16/00: 5B Turnover-1.
RM_5B_1 0	1403	170	Attempt to submit a subscription on behalf of a User ID for which there is no user profile. Verify that the subscription request is rejected.	EC	5B	1916	5B1005 0	Restricted Granule Access	5B	VATC	V		T. Gresko	2/16/00: 5B Turnover-1.
RM_5B_1 1	1433	10	Create user profiles with the following characteristics: 1. Authorized for ASTER L1B on-demand orders 2. Not Authorized for ASTER L1B on-demand orders 3. Privileged NASA User 4. Regular NASA User 5. Non-NASA User and verify the NASA User attribute value for the Non-NASA User has a default value of 'N'.	FC	5B	1899	5B0802 0	User Profile Enhancements	5B	VATC	V		J. Street	4/11/00: 5B Turnover-3.
RM_5B_1 1	1434	20	Update user profiles and change the following characteristics: 1. Authorization for ASTER L1B on-demand orders 2. NASA User Type	FC	5B	1899	5B0802 0	User Profile Enhancements	5B	VATC	V		T. Gresko	3/13/00: 5B Turnover-2: No NCR.
RM_5B_1 1	1435	30	Verify that it is not possible to enter a NASA User Type other than Privileged, Regular, or Non-NASA into a user profile.	EC	5B	1899	5B0802 0	User Profile Enhancements	5B	VATC	V		J. Street	1/7/00: 5B Turnover-1: Only executed Steps # 1-3,62,63.

RM_5B_1 1	1436	40	Verify that it is not possible to enter a privilege other than "Authorized for ASTER L1B" and "Not Authorized for ASTER L1B" into the user privilege field of a user profile.	EC	5B	1899	5B0802 0	User Profile Enhancements	5B	VATC	V		T. Gresko	3/13/00: 5B Turnover-2: No NCR.
RM_5B_1 2	1478	10	Submit a sufficiently large number of data orders for Landsat scenes and non-Landsat 7 granules to cause requests to be queued. Concurrently, cause data processing jobs to request the staging of at least three non -Landsat 7 granules. Verify the following: * The SDSRV GUI displays the correct state of asynchronous requests, whether they are pending execution or active. * Throughout the test, no more Landsat 7 scene requests are concurrently active as has been configured in the SDSRV for heavy requests * Throughout the test, no more Landsat 7 scene requests and non Landsat 7 requests are concurrently active as has been configured in the SDSRV for the total number of asynchronous acquire requests * Once the maximum configured numbers are reached, new requests will be started if and only if an executing request (of the appropriate type - heavy or not heavy) completes... * The synchronous acquire requests submitted by PDPS are not counted against the heavy and asynchronous request	FC	5B	1900	5B0803 0	SDSRV Recovery and Queuing Enhancements	5B	VATC	V		T. Gresko	3/8/00: 5B Turnover-1: Test was interrupted for a long period due to AMASS failure.
RM_5B_1 2	1479	20	Induce a fault that terminates the SDSRV server while asynchronous acquire requests of both types (i.e., Landsat 7 and non Landsat 7) are in progress. Terminate the HDFEOS server, warm restart the SDSRV and restart the HDFEOS servers. Submit at least one data order for Landsat scenes and one for non Landsat 7 granules. Verify the following: * The SDSRV GUI displays the correct state of the asynchronous requests, whether they have been just submitted or are pending restart in the warm start queue. * No asynchronous acquire request is lost * Those asynchronous acquire requests that were in progress at the time of SDSRV termination are restarted and complete normally in priority FIFO order. * Re-submissions of staging requests by processing jobs are recognized as re-submissions and processed accordingly	FC	5B	1900	5B0803 0	SDSRV Recovery and Queuing Enhancements	5B	VATC	V		T. Gresko	3/8/00: 5B Turnover-1: Test was interrupted for a long period due to AMASS failure.
RM_5B_1 2	1480	30	Induce a fault that terminates the SDSRV server while asynchronous acquire requests of both types (i.e., Landsat 7 and non Landsat 7) are in progress. Terminate the HDFEOS server, cold restart the SDSRV and re-start the HDFEOS servers. Verify the following: * The request queue has been cleared out and the SDSRV GUI shows no pending or executing acquire requests. * Asynchronous acquire requests of both types submitted thereafter are processed normally.	FC	5B	1900	5B0803 0	SDSRV Recovery and Queuing Enhancements	5B	VATC	V		T. Gresko	3/8/00: 5B Turnover-1: Test was interrupted for a long period due to AMASS failure.

RM_5B_1 3	1496	10	Using the SDSRV GUI, process prepared descriptor changes that exercise adding optional collection metadata, optional inventory metadata, services, events and new qualifiers on existing events. Verify the following: a. the SDSRV GUI can be used to request the installation of the ESDT updates. b. the GUI lets the operator select several ESDT at once for update. c. the GUI displays confirmation of successful update. d. the ESDT changes were successfully processed and installed in the SDSRV, ADSRV, DDICT, and SBSRV. e. the inventory metadata for the existing granules remained intact. f. granules that make use of the changed ESDTs can be inserted. g. the event updates were successfully processed and installed in the SBSRV and ADSRV. h. the service updates were successfully processed and installed in the ADSRV. i. updated events retained the same event identifier. j. the previously existing subscriptions remained intact and fire during inserts performed after the E	FC	5B	1911	5B0804 0	Update ESDT	5B	VATC	V		J. Street	5/3/00: 5B Turnover-3: Parts d, g, h, and k failed. The rest passed. 5/9/00: 5B Turnover-3: NCR 26659(2) was successfully verified.
RM_5B_1 3	1498	30	Using the SDSRV GUI, use an unchanged descriptor for an ESDT update. Verify that the SDSRV GUI informs the operator that no changes were detected.	FC	5B	1911	5B0804 0	Update ESDT	5B	VATC	V		T. Gresko	5/5/00: 5B Turnover-3.
RM_5B_1 3	1499	40	With the SDSRV in maintenance mode, verify that the SDSRV will reject search, acquire, and insert requests.	FC	5B	1911	5B0804 0	Update ESDT	5B	VATC	V		T. Gresko	5/5/00: 5B Turnover-3.
RM_5B_1 3	1500	50	Attempt to use the descriptors containing valid violations for updates. Verify that the ESDT update is rejected and appropriate error information is provided to the operator via the GUI or the application log file. Correct the valid violation and resubmit the ESDT update. Verify that the update succeeds and was correctly processed.	EC	5B	1911	5B0804 0	Update ESDT	5B	VATC	V		T. Gresko	5/5/00: 5B Turnover-3.
RM_5B_1 3	1501	60	Attempt to process the descriptors containing updates to attributes that are non-updateable. Verify that the update attempt is rejected and that the ESDTs remain accessible in normal mode (i.e., that they have not been flagged as 'invalid').	EC	5B	1911	5B0804 0	Update ESDT	5B	VATC	V		T. Gresko	5/5/00: 5B Turnover-3.
RM_5B_1 3	1502	70	Attempt to process a changed descriptor while ADSRV is down. The attempt should fail. Restart ADSRV and resubmit the ESDT update. Verify that the update succeeds and was correctly processed.	EC	5B	1911	5B0804 0	Update ESDT	5B	VATC	V		T. Gresko	5/5/00: 5B Turnover-3.
RM_5B_1 3	1503	80	Attempt to process a changed descriptor while DDICT is down. The attempt should fail. Restart DDICT and resubmit the ESDT update. Verify that the update succeeds and was correctly processed.	EC	5B	1911	5B0804 0	Update ESDT	5B	VATC	V		T. Gresko	5/5/00: 5B Turnover-3.
RM_5B_1 3	1504	90	Attempt to process a descriptor that includes changes to events as well as new events, while SBSRV is down. The attempt should fail. Restart SBSRV and resubmit the ESDT update. Verify that the update succeeds and was correctly processed.	EC	5B	1911	5B0804 0	Update ESDT	5B	VATC	V		J. Street	5/9/00: 5B Turnover-3.

RM_5B_1 3	1505	100	Attempt to process a descriptor that includes changes to events as well as new events. Time an ADSRV failure to occur after the SDSRV exported its changes to the ADSRV, but before the SDSRV attempts to export its changes to the ADSRV. The attempt should fail. Then restart the ADSRV and resubmit the ESDT update. Verify that the update succeeds and was correctly processed.	EC	5B	1911	5B0804 0	Update ESDT	5B	VATC	V		J. Street	5/9/00: 5B Turnover-3.
RM_5B_1 3	1506	110	Induce an SDSRV failure while it processes an ESDT update. Restart the SDSRV and resubmit the ESDT update. Verify that the update succeeds and was correctly processed.	EC	5B	1911	5B0804 0	Update ESDT	5B	VATC	V		J. Street	5/5/00: 5B Turnover-3.
RM_5B_1 3	1507	120	Warm start the SDSRV in non-maintenance mode after an ESDT update failed in maintenance mode. Verify that the warm restart succeeds. Attempt to access granules belonging to the ESDT whose update failed. Verify that the accesses fail with the correct error indication. Terminate the SDSRV and restart it in maintenance mode. Resubmit the ESDT update and let it complete successfully. Warm-restart the SDSRV in non-maintenance mode and verify that granules belonging to that ESDT can now be accessed.	EC	5B	1911	5B0804 0	Update ESDT	5B	VATC	V		T. Gresko	5/5/00: 5B Turnover-3.
RM_5B_1 3	1508	130	Induce an SDSRV failure while it processes an ESDT update. Restart the SDSRV and resubmit the original ESDT. Then restart the SDSRV in normal mode and attempt to access the descriptor. Verify that the descriptor is flagged invalid and cannot be used.	EC	5B	1911	5B0804 0	Update ESDT	5B	VATC	V		T. Gresko	5/5/00: 5B Turnover-3.
RM_5B_1 4	1678	10	Convert the preloaded inventory such that the ASTER L1B and DEM granules are associated with the BROWSE from the corresponding ASTER L1A granule. Verify the following: * L1B have been correctly associated with a BROWSE * DEM have been correctly associated with its matching BROSE * DEM and L1B without matching L1A have not been associated with a BROWSE * The DEM and L1B that match the L1A that has no BROWSE do not have an associated BROWSE	FC	5B	1920	5B1204 0	ASTER Browse	5B	VATC	V		T. Gresko	1/12/00: 5B Turnover-1.
RM_5B_1 4	1679	20	Insert an ASTER L1A granule with BROWSE that matches at least one L1B and DEM that previously had no matching L1A. Verify that the BROWSE is correctly associated with the L1B and DEM.	FC	5B	1920	5B1204 0	ASTER Browse	5B	VATC	V		T. Gresko	1/12/00: 5B Turnover-1.
RM_5B_1 4	1680	30	Insert an ASTER L1A granule with BROWSE that matches no existing ASTER L1B and DEM. Then insert the corresponding ASTER L1B and DEM. Verify that the BROWSE is correctly associated with the L1B and DEM.	FC	5B	1920	5B1204 0	ASTER Browse	5B	VATC	V		T. Gresko	1/12/00: 5B Turnover-1.
RM_5B_1 4	1681	40	Insert an ASTER L1B and DEM granule for which no matching ASTER L1A exists in the inventory. Verify that they insert correctly and are not associated with a BROWSE.	FC	5B	1920	5B1204 0	ASTER Browse	5B	VATC	V		T. Gresko	1/12/00: 5B Turnover-1.
RM_5B_1 4	1682	50	Interrupt the process of associating ASTER L1B and DEM granules in the pre-existing inventory with the BROWSE granules from their corresponding ASTER L1A. Demonstrate that the process can be restarted.	EC	5B	1920	5B1204 0	ASTER Browse	5B	VATC	V		T. Gresko	1/12/00: 5B Turnover-1.

RM_5B_1 4	1683	60	Verify that ASTER Browse granules are not associated with ASTER L1B and DEM granules when the following conditions are met: · Ingest ASTER L1B and DEM containing the following metadata: ASTERMapProjection value matches the value of a previously ingested ASTER L1A granule but the SingleDateTime (CalendarDate and TimeOfDay) value does not match. · Ingest ASTER L1B and DEM containing the following metadata: SingleDateTime (CalendarDate and TimeOfDay) value matches the value of a previously ingested ASTER L1A granule but the ASTERMapProjection value does not match. · Ingest ASTER L1B and DEM containing the following metadata: neither the ASTERMapProjection nor SingleDateTime (CalendarDate and TimeOfDay) values match the values of a previously ingested ASTER L1A granule.	EC	5B	1920	5B1204 0	ASTER Browse	5B	VATC	V		T. Gresko	1/12/00: 5B Turnover-1.
RM_5B_1 5	1783	10	Submit user profile registration requests for four users at two of the sites (non-SMC sites), assigning different User ID and V0 password values. Approve the user profile registration requests at the SMC and verify the following: * The user profiles were correctly replicated within minutes if there are no communication or software errors. * A V0 order entered against one of the sites for one of the users for which the other site is the home DAAC is accepted by ECS	FC	5B	1922	5B0807 0	User Profile Replication-5B	5B	VATC	V		Hines/S any	4/26/00: 5B Turnover-3: Skipped Step 90 (pending input from Development). 4/28/00: 5B Turnover-3: Criterion verified.
RM_5B_1 5	1784	20	Attempt to add a user profile at the SMC where another site (non-SMC site) is the designated homeDAAC. Verify the following: * The user profile registration request is approved. * The user profile is correctly replicated within minutes if there are no communication or software errors. * A V0 order entered against one of the sites for one of the users for which the other site is the home DAAC is accepted by ECS	FC	5B	1922	5B0807 0	User Profile Replication-5B	5B	VATC	V		Hines/S any	4/26/00: 5B Turnover-3: Skipped Step 140 (pending input from Development). 4/28/00: 5B Turnover-3: Criterion verified.
RM_5B_1 5	1785	30	Attempt to update a user profile at the SMC where another site (non-SMC site) is the designated homeDAAC. Verify the following: * The user profile is correctly updated. * The user profile is correctly replicated within minutes if there are no communication or software errors.	FC	5B	1922	5B0807 0	User Profile Replication-5B	5B	VATC	V		T. Hines	4/26/00: 5B Turnover-3.
RM_5B_1 5	1786	40	Disable the user profile for a user at one site (non-SMC site) via the SMC GUI. Verify that the user profile is disabled at the other site (non-SMC site).	FC	5B	1922	5B0807 0	User Profile Replication-5B	5B	VATC	V		T. Hines	4/26/00: 5B Turnover-3.
RM_5B_1 5	1787	50	Bring down the user profile database at the SMC, and verify that replication is disabled to the other two sites.	EC	5B	1922	5B0807 0	User Profile Replication-5B	5B	VATC	V		T. Hines	4/26/00: 5B Turnover-3.
RM_5B_1 5	1788	60	Bring down the user profile database at the SMC and verify that a site (non-SMC site) may perform a local update of a user profile via isql.	EC	5B	1922	5B0807 0	User Profile Replication-5B	5B	VATC	V		T. Hines	4/26/00: 5B Turnover-3.

RM_5B_15	1789	70	Bring down the user profile database at the SMC and : * verify that a site (non-SMC site) may activate a temporary user profile via isql. Restart the SMC user profile database and: * verify that the temporary user profile that was activated via isql at the HomeDAAC can be entered at the SMC via MSS user profile GUI	EC	5B	1922	5B08070	User Profile Replication-5B	5B	VATC	V		T. Hines	4/26/00: 5B Turnover-3.
RM_5B_15	1790	80	Verify by inspection that the operator at the SMC can obtain a listing of failed replications. With the MSS user profile databases running at all sites, run rs_subcmp to verify that all the replicated databases have been synchronized.	EC	5B	1922	5B08070	User Profile Replication-5B	5B	VATC	V		T. Hines	4/26/00: 5B Turnover-3.
RM_5B_15	1791	90	Attempt to add a user profile at two sites (non-SMC sites) via the SMC GUI, at exactly the same time and assign the same User ID and V0 Password. Verify that one user profile is accepted exactly as entered and the other is accepted with a sequence number appended to the User ID.	EC	5B	1922	5B08070	User Profile Replication-5B	5B	VATC	V		T. Hines	4/26/00: 5B Turnover-3.
RM_5B_15	1792	100	Attempt to add a user profile at one site (non-SMC site) via the SMC GUI where another site (non-SMC site) is the designated homeDAAC. Verify that the user profile registration request is rejected.	EC	5B	1922	5B08070	User Profile Replication-5B	5B	VATC	V		T. Hines	4/27/00: 5B Turnover-3.
RM_5B_15	1793	110	Attempt to modify a user profile at one site (non-SMC site) via the SMC GUI where another site (non-SMC site) is the designated homeDAAC. Verify that the user profile update is rejected.	EC	5B	1922	5B08070	User Profile Replication-5B	5B	VATC	V		T. Hines	4/27/00: 5B Turnover-3.
RM_5B_15	1794	120	Bring down the user profile database server at one site (non-SMC site), while approving two user profile requests at the SMC. Then restart the user profile database server at the non-SMC site and verify that the new user profiles are replicated within minutes of the restart if there are no new communication or software errors.	EC	5B	1922	5B08070	User Profile Replication-5B	5B	VATC	V		T. Hines	4/26/00: 5B Turnover-3.
SL_5B_01	1776	1	Validate the workload specification for the GSFC DAAC as specified in Release 5B Workload Specification	PC	5B									
SL_5B_02	1777	1	Validate the workload specification for EDC DAAC as specified in Release 5B Workload Specification.	PC	5B									

SM_5B_01	1625	10	Inspect the INS database to confirm that all the data types listed for 5B for the following interfaces have the correct entry information: a) DAS b) SIPS - AMSR-E c) SIPS - AMSR L1A (PM-1) d) SIPS - AMSR L1A (ADEOS) e) EDOS - PM-1 L0 f) SIPS - EMOS History Files For SIPS data types, Compare SIPS ICD to check DataType and FileTypeTemplateKey in InDataTypeTemplate table. FileTypeTemplateKey should be 'SIPS' or 'NON_STD_SIPS'. For AMSR L1A (PM-1) and AMSR L1A(ADEOS), check DataType in InDataTypeTemplate table against the NSIDC ICD. For EMOS History Files, check DataType in InDataTypeTemplate table against EMOS ICD. For EDOS L0, check DataType in InDataTypeTemplate table against EDOS ICD For DAS, check information in each of the following tables: InDataTypeTemplate table - Check DataType against DAS ICD InFileTypeTemplate table - check that FileTypeTemplateKey equals DataType in InDataTypeTemplate table InSourceMCF table - check SourceMCF equals DataType in InDat	FC	5B	1905	5B09060	Ingest Database Data Type Verification	5B	VATC	V		J. Street	4/13/00: 5B Turnover-3: Failed with 2 NCRs: 26388(2) and 26421(2). Both NCRs were (later) downgraded to a Sev 2. These NCRs were written because data types were missing from the Ingest database. 4/26/00: 5B Turnover-3: Both NCRs 26388(2) and 26421(2) were successfully verified.
SM_5B_01	1627	30	Ingest request cancel of an active request * Initiate an Insert of a DAS data product * Cancel the request while it is still active	FC	5B	1904	5B09050	Ingest Cancel	5B	VATC	V		J. Street	1/18/00: 5B Turnover-1: NCR 25168(3). Request state = Cancelled when Granule state = Successful. 2/28/00: 5B Turnover-2. NCR 25168 was successfully verified.
SM_5B_01	1628	40	Ingest request cancel of an active granule insert * Initiate a multi-granule insert (using a single PDR) of several DAS data products * While the request is still active, cancel a single granule from the request.	FC	5B	1904	5B09050	Ingest Cancel	5B	VATC	V		J. Street	1/18/00: 5B Turnover-1.
SM_5B_01	1629	50	Ingest request cancel of a suspended request * Take Down the appropriate STMG/SDSRV server (e.g., Staging Disk Server) * Insert a higher level MODAPS product through the SIPS interface- This will cause the request to 'suspend'. * Cancel the suspended request	FC	5B	1906	5B09070	Ingest Auto-Suspend/Cancel/Resume	5B	VATC	V		J. Street	1/17/00: 5B Turnover-1: NCR 25117(2). Ingest FTP did not Auto-Suspend but SDSRV and Staging did. 2/29/00: 5B Turnover-2. NCR 25117(2) was successfully verified.
SM_5B_01	1630	60	Ingest request resumption of a suspended request * Take down the appropriate STMG/SDSRV server (e.g., Staging Disk Server) * Insert a higher level MODAPS product through the SIPS Interface n This will cause the request to 'suspend'. * Bring up the STMG/SDSRV server that was taken down * Resume the request * Check for successful completion	FC	5B	1906	5B09070	Ingest Auto-Suspend/Cancel/Resume	5B	VATC	V		J. Street	1/17/00: 5B Turnover-1: NCR 25117(2). Ingest FTP did not Auto-Suspend but SDSRV and Staging did. 2/29/00: 5B Turnover-2. NCR 25117(2) was successfully verified.

SM_5B_01	1631	70	Ingest request cancel of a partially suspended request * Insert several higher level MODAPS products through the SIPS interface using a single PDR. * After successful ingest/archive of some of the granules, take down the appropriate STMGT/SDSRV server (e.g., Staging Disk Server)- This will cause the request to 'partially suspend'. * Cancel the partially suspended request	FC	5B	1906	5B09070	Ingest Auto-Suspend/Cancel/Resume	5B	VATC	V		T. Gresko	1/17/00: 5B Turnover-1
SM_5B_01	1632	80	Ingest request resumption of a partially suspended request * Insert several higher level MODAPS products through the SIPS interface using a single PDR. * After successful ingest/archive of some of the granules, take down the appropriate STMGT/SDSRV server (e.g., Staging Disk Server)- This will cause the request to 'partially suspend'. * Bring up the STMGT/SDSRV server that was taken down * Resume the partially suspended request * Check for successful completion	FC	5B	1906	5B09070	Ingest Auto-Suspend/Cancel/Resume	5B	VATC	V		T. Gresko	1/17/00: 5B Turnover-1.
SM_5B_01	1633	90	Show that system can ingest and archive the daily volume of DAS data at 1.2 the daily input rate (1.2 X 2.4 = 2.9 GB/day). The data volume includes both the first look and late look analysis products allocated to Release 5A and 5B	PC	5B	1932	V1633	EVR for Criteria Key 1633	5B	PVC	V		S. Donohue	4/17/00: 5B.01. DAO Trickle. Ingest 35 DAO granules of Volume=3.9 GB within 24 hour GSFC test.
SM_5B_02	1462	10	From the V0 EDG Client (or a test driver simulating V0 protocols) submit separate price estimate requests for full band floating scene products of the following approximate sizes: a) < 1 scene b) 3 scenes c) 5 scenes d) 20 scenes e) whole subinterval. Check that the prices returned are consistent with the GFE algorithm.	FC	5B	1924	5B10060	Landsat-7 Floating Scene Subsetting	5B	VATC	V		A. Sanyal	5/5/00: 5B Turnover-3.
SM_5B_02	1463	20	From the V0 EDG Client (or a test driver simulating V0 protocols) submit separate orders for full band floating scene products of the following approximate sizes: a) < 1 scene (electronic) b) 3 scenes (tape) c) 5 scenes (electronic) d) 20 scenes e) whole subinterval (<10 scenes n tape) Verify that order completion notifications were received.	FC	5B	1924	5B10060	Landsat-7 Floating Scene Subsetting	5B	VATC	NV	26548 (3)	A. Sanyal	5/5/00: 5B Turnover-3. NCR 26548.
SM_5B_02	1465	40	From the V0 EDG Client (or a test driver simulating V0 protocols) submit a single price estimate request for multiple full band floating scene products of the following approximate sizes: a) < 1 scene b) 3 scenes. Check that the prices returned are consistent with the GFE algorithm	FC	5B	1924	5B10060	Landsat-7 Floating Scene Subsetting	5B	VATC	V		A. Sanyal	5/5/00: 5B Turnover-3.
SM_5B_02	1466	50	From the V0 EDG Client (or a test driver simulating V0 protocols) submit a single order for multiple full band floating scene products of the following approximate sizes: a) < 1 scene b) 3 scenes. Verify that order completion notification was received.	FC	5B	1924	5B10060	Landsat-7 Floating Scene Subsetting	5B	VATC	V		A. Sanyal	5/5/00: 5B Turnover-3.

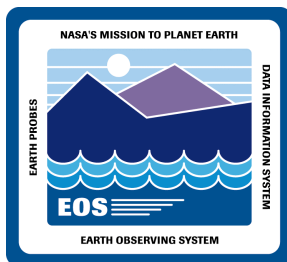
SM_5B_0 2	1468	70	From the V0 EDG Client (or a test driver simulating V0 protocols) submit separate price estimate requests for band subsetting floating scene products as follows: a) Bands 1-6a b) Bands 6b-8 c) Bands 4 & 7 d) Band 8 only e) No Bands. For item a) - e) perform separate tests for spatial extents: i. < 1 scene ii. 3 scenes iii. 5 scenes iv. 20 scenes v. full subinterval. Check that the prices returned are consistent with the GFE algorithm.	FC	5B	1924	5B1006 0	Landsat-7 Floating Scene Subsetting	5B	VATC	V		A. Sanyal	5/5/00: 5B Turnover-3.
SM_5B_0 2	1469	80	From the V0 EDG Client (or a test driver simulating V0 protocols) submit separate orders for band subsetting floating scene products as follows: a) Bands 1-6a b) Bands 6b-8 c) Bands 4 & 7 d) Band 8 only (ensure request covers at least 2 Band 8 data files) e) No Bands. For item a) - e) perform separate tests for spatial extents: i. < 1 scene ii. 3 scenes iii. 5 scenes iv. 20 scenes v. full subinterval Verify that order completion notifications were received.	FC	5B	1924	5B1006 0	Landsat-7 Floating Scene Subsetting	5B	VATC	NV	26548 (3)	A. Sanyal	5/5/00: 5B Turnover-3. NCR 26548.
SM_5B_0 2	1472	110	From the V0 EDG Client (or a test driver simulating V0 protocols) attempt to submit an order for full band floating scene products of the following approximate size on tape a) 15 scenes. The attempt should fail as being too large to fit on a single media	EC	5B	1924	5B1006 0	Landsat-7 Floating Scene Subsetting	5B	VATC	NV	26548 (3)	A. Sanyal	5/5/00: 5B Turnover-3. NCR 26548.
SM_5B_0 2	1473	120	From the V0 EDG Client (or a test driver simulating V0 protocols) submit a single order for multiple full band floating scene products of the following approximate sizes - delivered electronically: a) < 1 scene b) 3 scenes. Induce a fatal order failure of part (b). Check success product generation, and check for correct order tracking and failure notification to simulated DORRAN and User.	EC	5B	1924	5B1006 0	Landsat-7 Floating Scene Subsetting	5B	VATC	V		A. Sanyal	5/5/00: 5B Turnover-3.
SM_5B_0 2	1474	130	From the V0 EDG Client (or a test driver simulating V0 protocols) submit a single order for multiple full band floating scene products of the following approximate sizes - delivered on tape: a) < 1 scene b) 3 scenes. Induce a fatal order failure of part (b). Check success product generation, and check for correct order tracking and failure notification to simulated DORRAN and User.	EC	5B	1924	5B1006 0	Landsat-7 Floating Scene Subsetting	5B	VATC	V		A. Sanyal	5/5/00: 5B Turnover-3.
SM_5B_0 2	1475	140	Shut down the simulated DORRAN server and submit a L7 fixed scene acquire from the V0 Interface. Observe the ECS logs and confirm the logging of the request failure.	EC	5B	1924	5B1006 0	Landsat-7 Floating Scene Subsetting	5B	VATC	V		A. Sanyal	5/5/00: 5B Turnover-3.
SM_5B_0 2	1476	150	Shut down the LIM server and submit a L7 fixed scene acquire from the V0 Interface. Observe the ECS logs and confirm the logging of the shutdown & request failure	EC	5B	1924	5B1006 0	Landsat-7 Floating Scene Subsetting	5B	VATC	V		A. Sanyal	5/5/00: 5B Turnover-3.
SM_5B_0 2	1477	160	Show that ECS can subset a daily volume of 110 scenes of Landsat 7 LOR data with the following breakdown: * 50 fixed WRS scenes * 60 equivalent floating subset scenes with 3 requests being for products at least 3 scenes in length plus 2 requests being for all scenes within the subinterval.	PC	5B									
SM_5B_0 3	1634	10	Run the analysis script to establish a list of unmerged subintervals and scenes	FC	5B	1921	5B0805 0	Landsat-7 Error Handling	5B	VATC	V		T. Gresko	3/29/00: 5B Turnover-2.

SM_5B_03	1635	20	Select 2 matching subinterval formats (1&2), and from the command line initiate subinterval and scene merging	FC	5B	1921	5B08050	Landsat-7 Error Handling	5B	VATC	V		T. Gresko	3/29/00: 5B Turnover-2.
SM_5B_03	1636	30	Select a single subinterval format for which Subinterval merging has been successful, but scene merging is incomplete because one of the formats was too short. Ingest the subsidiary data and from the command line, initiate subsidiary subinterval and scene merging.	FC	5B	1921	5B08050	Landsat-7 Error Handling	5B	VATC	NI		T. Gresko	3/29/00: 5B Turnover-2: This criterion is to be re-written to more clearly specify what's intended. As written, cannot be tested in the manner intended.
SM_5B_03	1637	40	Select a single subinterval format for which Subinterval merging has been successful, but scene merging is incomplete because one of the formats was too short. From the command line, delete the unmatched scenes from the archive.	FC	5B	1921	5B08050	Landsat-7 Error Handling	5B	VATC	V		T. Gresko	3/29/00: 5B Turnover-2.
SM_5B_03	1638	50	Select and promote an Orphaned Subinterval format and its scenes to the merged L0R and WRS collections. Select and promote orphaned scenes (subinterval merging was successful) the the merged WRS collection	FC	5B	1921	5B08050	Landsat-7 Error Handling	5B	VATC	V		T. Gresko	3/29/00: 5B Turnover-2.
SM_5B_03	1639	60	Select and delete from the archive unmerged Format 1 & Format 2 Subintervals and scenes	FC	5B	1921	5B08050	Landsat-7 Error Handling	5B	VATC	V		T. Gresko	3/29/00: 5B Turnover-2.
SM_5B_03	1640	70	Select a merged L70R granule and demerge it and its scenes into the F1 & F2 collections.	FC	5B	1921	5B08050	Landsat-7 Error Handling	5B	VATC	V		T. Gresko	3/29/00: 5B Turnover-2.
SM_5B_03	1641	80	Correctly handle database access conflicts with automated operations during database update activities (merge, demerge, & delete)	EC	5B	1921	5B08050	Landsat-7 Error Handling	5B	VATC	V		T. Gresko	3/29/00: 5B Turnover-2.
SM_5B_03	1642	90	Correctly handle database back-out of incomplete changes if failure occurs either during merge or de-merge operations.	EC	5B	1921	5B08050	Landsat-7 Error Handling	5B	VATC	V		T. Gresko	3/29/00: 5B Turnover-2.

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Appendix C. Release 5B Performance and Load Tests

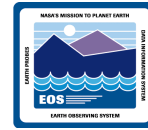
Appendix C contains the results associated with the performance and load tests conducted in the PVC for Release 5B. These tests were based on approved 24-hour workload specifications applicable to Release 5B for the EDC and GSFC DAACs.



5B Performance Tests

20.June.00

Roadmap



Brief overview of results

- Summary Data
- Conclusions

Examination of Detail Data Supporting Conclusions

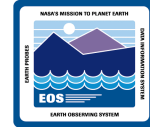
- Order: ICL, DRP, ACM, DIP, PLN/SPR, INT, MSS

Backup Charts

- Additional Data

PVC 5B - 2

ECS 5B Performance Test



Based on an approved workload specification

- 24 hours of full Terra (EOS-AM) ingest, production, and distribution
 - Plus 20% additional load for contingencies
- Two scenarios
 - EDC Run on April 24/25, 2000
 - GSFC Run on May 8/9, 2000

Release 5B constraints

- No SGI Origins used (limited test to one science processor and one FSMS)
- Simulated external interfaces
- Synthetic PGEs
- 175K granule inventory and 2.5 TB in archive
- PVC network connectivity and hardware

PVC 5B - 3

Use of synthetic PGEs allowed determination of whether PDPS was capable of processing the correct number of PGEs, even in the absence of a full complement of science processors. It also allowed the staff to concentrate on Performance Testing rather than interaction between PGEs and science data.

Use of simulated external interfaces did change the internal network loading somewhat.

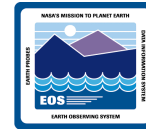
Arrival of data at ECS was simulated via scripts

PVC network connectivity is not what is in the field (at the DAACs). It was felt that the differences did not have a significant impact on the tests.

PVC hardware has fewer processors in the Archive (drg) and Science Processing (spg). In addition, the PDPS queuing server (sps) has less processing power.

The place where PVC hardware really differs with the DAACs is number of disks and disk controllers. The PVC has less disk volume available and fewer controllers.

5B Performance Tests Summary



	EDC		GSFC*	
Area	Workload Achieved	PVC Goal	Workload Achieved	PVC Goal
Ingest	55%	70%	104%	100%
Production	110%	100%	90%	60%
Distribution	49%	50%	81%	50%
Search	100%	100%	157%	100%
Browse	100%	100%	134%	100%

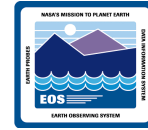
* Results unofficial

PVC 5B - 4

The PVC configuration at the time of the test has 25% of the archive throughput and 50% of the science processor I/O throughput of GDAAC and EDAAC. Thus, a full 5B daily workload could not be performed in the PVC in 24 hours.

By the way, this presentation will many times refer to EDC and GSFC. These are references to the EDC and GSFC scenarios, respectively, not to EDAAC and GDAAC.

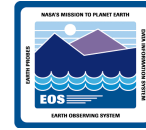
Detailed Results - EDC



	REQUIREMENT		ACTUAL		Percent Achieved	
	Granules	Gbytes	Granules	Gbytes	Granules %	Gbytes %
Ingest						
ASTER L1A	937	116	366	44.5	39	38
ASTER L1B	372	47	371	51.3	100	109
Ancillary	11	<1	5	<1	45	
ASTER L0 Expedited	39	3	35	2	90	67
L70R F1 & F2	84	168	87	87	104	52
MODIS High Level (MODAPS)	3718	185	1682	95.5	45	52
	Scenes		Scenes			
IGS Metadata/Browse	690	<2	82	3.7	12	
L70R WRS	336		192		57	
totals	6187	519	2820	284	46	55
Distribution	Orders	Gbytes	Orders	Gbytes	Orders %	Gbytes %
8mm - L70R WRS	20	10	9	4.5	45	45
8mm - ASTL1A	39	96.72	5	11.5	13	12
8mm - MOD09GHK	31	82.9	18	46.8	58	56
FTP Pull AST9	75	20.6	29	8	39	39
FTP Pull AST7	75	20.6	33	9	44	44
FTP Pull AST5	75	0.7	21	0.2	28	29
FTP Pull AST4	75	0.5	19	0.1	25	20
FTP Pull AST8	75	0.38	19	0.06	25	16
FTP Pull - AST09T	75	1.17	66	0.9	88	77
Ftp Pull - ASTL1B	5	4.41	6	5.3	120	120
Ftp Pull - L70WRS	90	45	57	28.5	63	63
Ftp Push - ASTL1B	372	46.87	154	18.9	41	40
Ftp Push - MODIS	780	78	1208	67.35	155	86
totals	1787	407.85	1644	201.11	92	49
DPRs	Expected	Gbytes	Actual	Gbytes	DPRs %	Gbytes %
ASTER DST (routine)	372	40	421	7.2	113	18
ASTER ACVS (on demand)	75	36	141	76	188	211
ASTER ACT (on demand)	75	1	70	1	93	100
ASTER ETS (on demand)	75	2	141	2.9	188	145
ASTER BTS (on demand)	75	1	69	1	92	100
totals	672	80	842	88.1	125	110

PVC 5B - 5

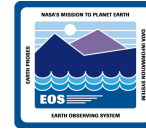
Detailed Results - GSFC



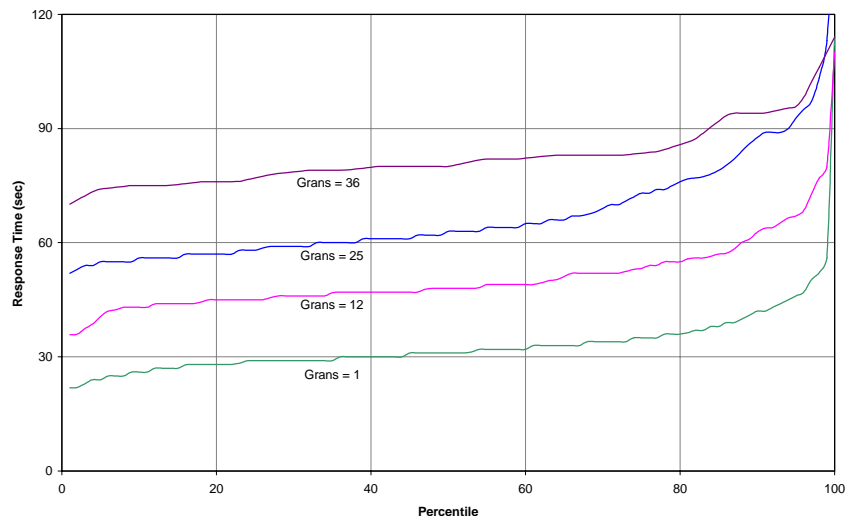
	REQUIREMENT		ACTUAL		Percent Achieved	
	Granules	Gbytes	Granules	Gbytes	Granules %	Gbytes %
Ingest						
AM1ANC	15	<1	18	<1	120	
AM1ATTf	15	<1	18	<1	120	
ANCILLARY	10	1	9	1	90	100
AST_EXP	39	2.4	44	2.5	113	104
DAO	24	2	36	2	150	100
MOD000	15	97.5	15	95.5	100	98
MODIS00_EXP (MOD000X)	39	2.4	41	3.7	105	154
MODIS_HL_BROWSE (Browse.001)	408	<1	553	<1	136	
MODIS_HL_PRODUCT (MOD04L_0)	1,805	69	2336	76.7	129	111
MODIS_HL_PROD_HIST (PH.001)	1,805	<1	2314	<1	128	
MODIS_HL_QA (QA.001)	192	<1	270	<1	141	
totals	4367	174.3	5654	181.4	129	104
Distribution	Orders	Gbytes	Orders	Gbytes	Orders %	Gbytes %
8mm	97	227.4	61	126	63	55
Ftp Pull	143	111.3	32	139	22	125
Ftp Push - AST_EXP	39	2.5	44	2.5	113	100
Ftp Push - MOD02OBC	360	21	321	18.2	89	87
Ftp Push - MOD021KM	360	96.6	321	84.2	89	87
Ftp Push - MOD02HKM	360	62	321	54	89	87
Ftp Push - MOD02QKM	360	62	321	54	89	87
Ftp Push - MOD03	360	22.9	(error in subscription)			
Ftp Push - MOD07_L2	360	10.3	311	6.7	86	84
Ftp Push - MOD35_L2	360	17.7	313	15	87	85
Ftp Push - MOD01	360	127	327	116.3	91	92
totals	3159	760.7	2372	617.9	75	81
DPRs	Expected		Actual		DPRs %	Gbytes %
DPREP-01	15	<1	18	<1	120	
DPREP-02	15	<1	19	<1	127	
MoPGE01	120	150	114	133.6	95	89
MoPGE02	359	236	321	212.6	89	90
MoPGE03	351	27	314	24.5	89	91
totals	860	413	786	370.7	91	90

PVC 5B - 6

Search & order response times GSFC scenario



Parametric Effect of Number of Granules Returned on Search Response Time



PVC 5B - 7

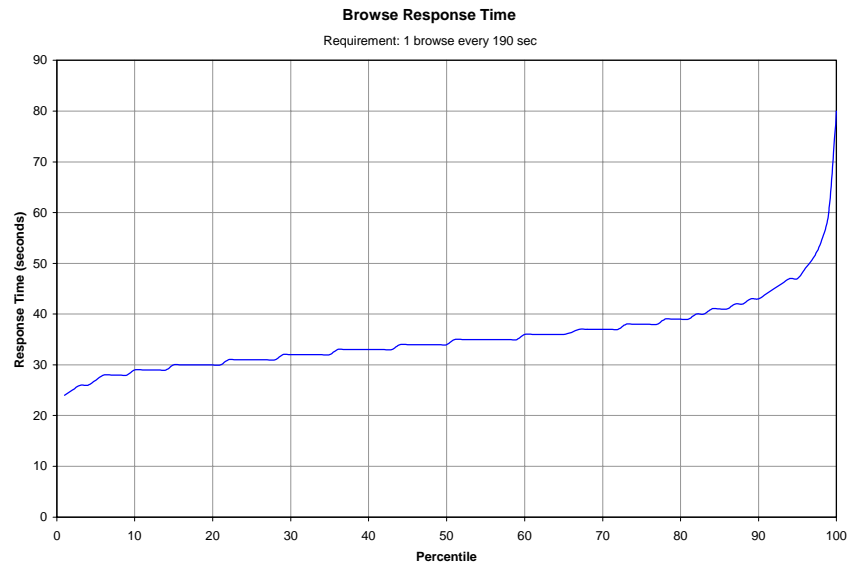
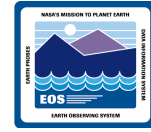
From what data is available from the test, it appears that ECS search and order response time is linear with number of granules returned. This linearity and the amount of additional time per granule returned is indicative of ECS spending a fair percentage of the response time translating or formatting the results, as opposed to spending the time in database operations.

Just in passing, it is noted that this graph demonstrates why requirements should be stated in the form of “x percent of such-and-such operations shall have a response of y seconds” or “such-and-such operations shall have an average response of y seconds”.

These are contrasted with the unqualified and more typical “such-and-such operations shall have a response time of y seconds”. The graph shows that there tends to be distributions of response times. With a distribution of times, an unqualified response time can be difficult (read expensive) to attain.

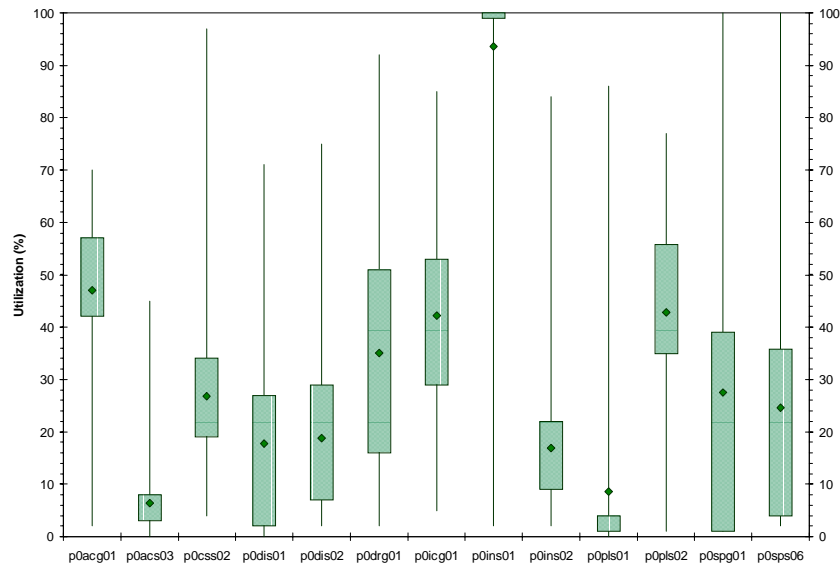
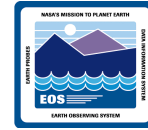
FYI: The 5B workload specification required that at least 45 search & orders be performed per hour.

Browse response times (GSFC)



PVC 5B - 8

Processor Utilization (EDC)



PVC 5B - 9

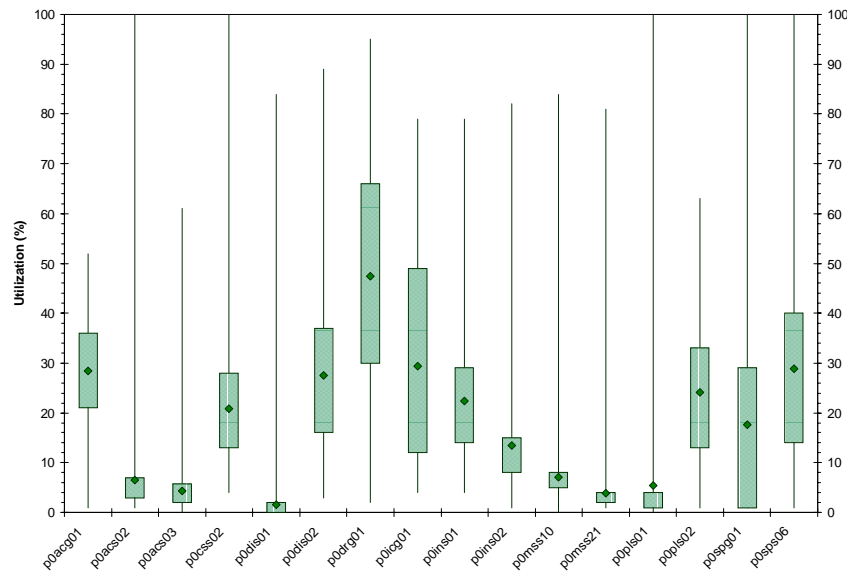
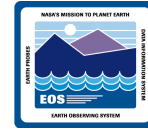
The tip of the upper whisker gives the maximum value during the 24-hour End-to-End test. The tip of the lower whisker gives the minimum.

The top of the box gives the value of the 3rd quartile and the bottom of the box gives the value of the 1st quartile.

The diamond gives the average over the entire 24-hour End-to-End test.

The extreme utilization of p0ins01 is artificial, it is caused by the L7 simulator. The GSFC run shows a more representative load on p0ins01.

Processor Utilization (GSFC)



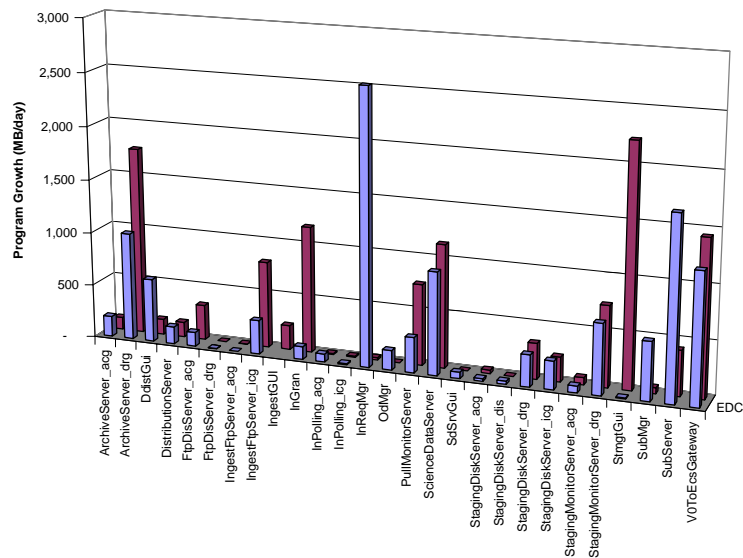
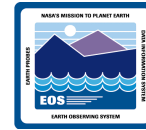
PVC 5B - 10

The tip of the upper whisker gives the maximum value during the 24-hour End-to-End test. The tip of the lower whisker gives the minimum.

The top of the box gives the value of the 3rd quartile and the bottom of the box gives the value of the 1st quartile.

The diamond gives the average over the entire 24-hour End-to-End test.

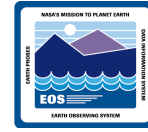
Program Memory Growth in 5B



PVC 5B - 11

When considering program memory leakage rates, keep in my that some machines (computers) have multiple servers running on them and multiple modes may be in use at any given time.

Conclusions (1)



Different suite of tests needed to determine how much growth is possible

- Roll-off (performance degradation) in queuing networks tends to be exponential, single workload test does not determine where roll-off point is

AMASS fnodes and cache are roughly correct

- Although their settings may be different from either EDC or GSFC

AMASS read/write algorithms need to be better understood

- It appears that at times hundreds of write requests are waiting
- Worked off very quickly when finally serviced

Memory Leaks are still a significant problem

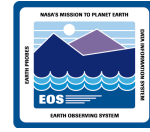
- Account for a large percentage of server restarts (crashes or bounces)

PVC 5B - 12

The phrase “queuing network” is used in the Queuing Theory sense, to wit, a set of servers wherein requests are sent to a server and are worked off by that server at some rate. ECS can be thought of as a queuing network.

The reason this is of interest is that running one workload does not provide enough information to predict the maximum load that ECS or any of its subsystems can handle. In order to predict the maximum capacity, one would need one or more workloads and a decent model of the time. Data from running the different workloads would be used to calibrate the model and the model would be used to predict bottlenecks and maximum capacities.

Conclusions (2)



Processing power is generally sufficient

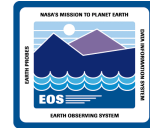
- p0acg01 utilization is high
 - Serves as User Push/Pull host, Browse Archive, and SDSRV & STMGT database host
- p0acs03 is extremely overpowered (excessive CPU power for load)
- p0drg01 utilization is of concern
 - However, both EDC & GSFC split their load across two SGIs and AMASS Archives
- p0icg01 also heavily loaded
 - However, test ingested 120% of daily ingest load within 16 hours, so margin in present
- Landsat 7 simulator should be modified or moved to another machine
 - Uses 100% of p0ins01 during the test
- Use of p0pls02, while not excess, should be better understood

Network settings in PVC should be examined

- Traffic seems to be moving as a large number of small packets

PVC 5B - 13

Conclusions (3)



Disk utilization is a problem area

- Appears to be Throughput bottleneck on p0drg01 and possibly p0spg01
 - DAACs spread I/O load across multiple drg and spg platforms
- Other places there are multiple unused or lightly used disks

Search/Order/Browse appears sufficient

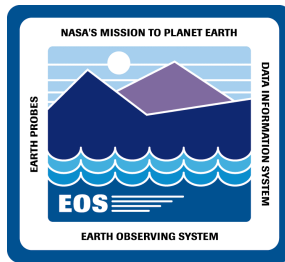
- Effort should be spent determining response time vs. number of hits

Time constraints limited amount of analysis performed

- Rich set of performance measurements acquired
- Analysis of paging demand/behavior should be performed

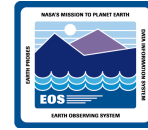
PVC 5B - 14

The issue underlying the concern for search & order response versus number of granules returned is the uncertainty about the user behavior. Will the average request in ECS return a small number of hits or a large number? Extrapolating response time from the current tests to cases where 100's of hits are returned is problematic.



Detail Data

Caveats & Notes



Data on AMASS performance not complete

- Multiple users of “sysperf” caused incorrect throughput data at times

Network traffic given in packets/second at Processor’s port

- Due to tools employed
- While not MB/sec, it is indicative of traffic rate and volume

Processor Utilization normalized to number of CPUs in box

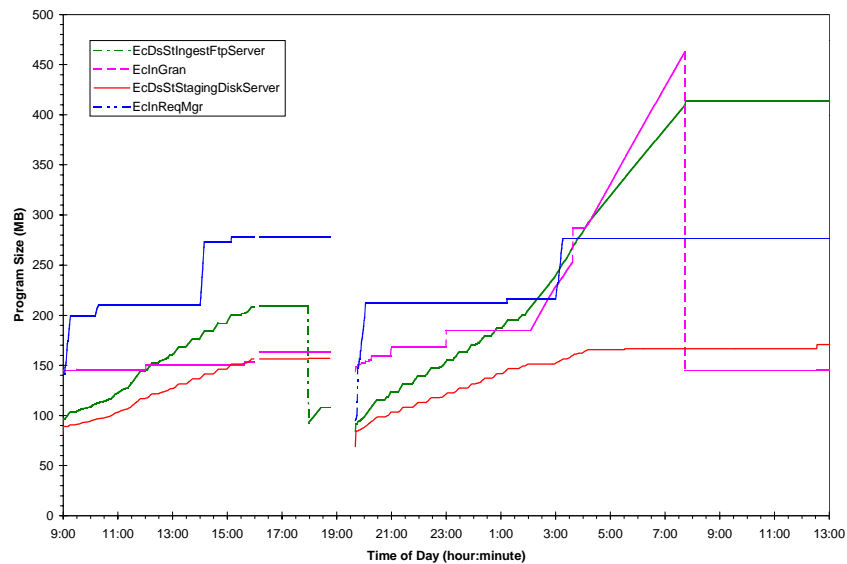
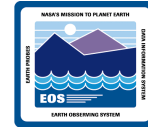
- 100% implies all CPUs busy

Not every problem detected will have a viewgraph showing the problem

- Some viewgraphs not included in attempt to hold down presentation size
- Supporting data available within ECS upon request

PVC 5B - 16

Memory leaks in p0icg01 (GSFC)

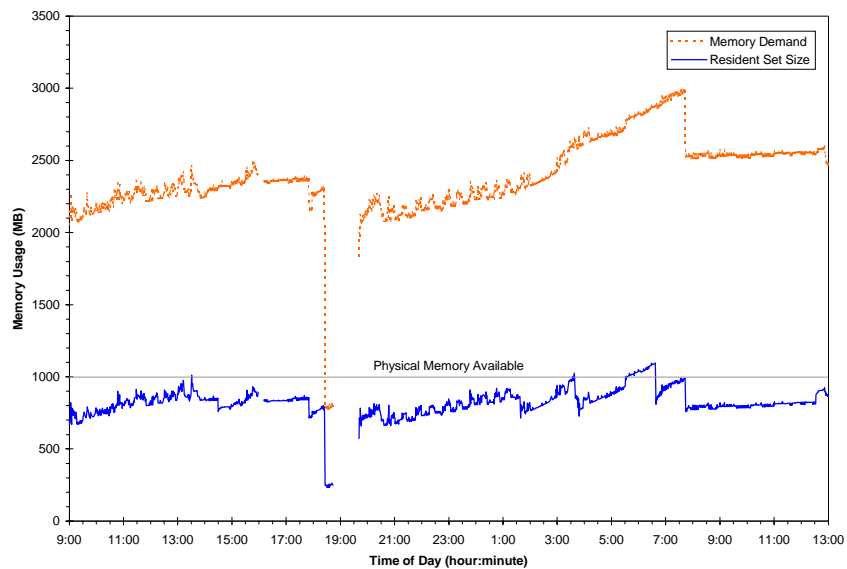
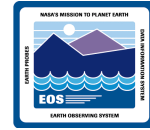


PVC 5B - 17

The lacunae in this and the following data is typically caused by the host system being down.

The sudden drops in this and other program memory size graphs are typically due to the software crashing or being bounced.

Demand for memory excessive in places (GSFC/p0icg01)

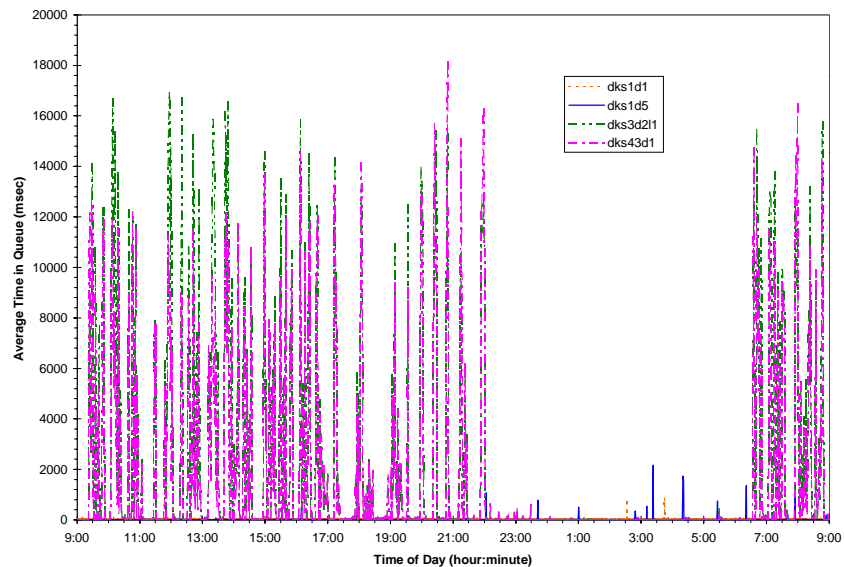
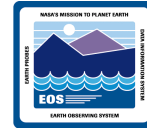


PVC 5B - 18

P0icg01 swap area is large enough (6+ GB) to hold all the programs, the problem is that pages have to be moved in and out (paging activity) in order to run the programs.

There is some evidence of throughput being impacted because of paging, but further analysis is necessary.

Excessive wait for p0icg01 disk during Ingest (EDC scenario)



PVC 5B - 19

Note that the average disk I/O request has to wait 10-15 SECONDS in the queue before it is performed when data is being actively ingested. Typically one is concerned if the queue wait time is greater than 0.1 seconds.

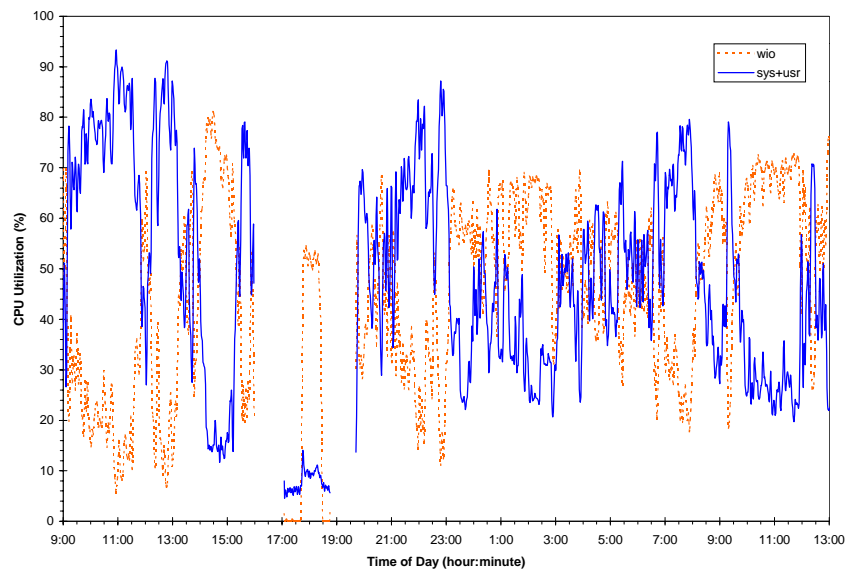
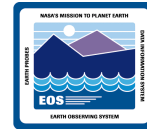
The wait in queue is not as severe in the GSFC scenario (1-2 seconds per request), but is still a problem.

Why the problem is worse in the EDC scenario has not been investigated at this time.

Ingest was able to keep up with its load and ingesting less data would only cause the periods of excessive time waiting in the queue to be separated by larger amounts of time.

The problem may not be so much of the excessive wait in the queue (which lowers the throughput), as it is the physical wear and tear on the disks.

P0drg01 CPU usage is high, but EDC & GSFC split load (GSFC)



PVC 5B - 20

EDC & GSFC both have two FSMS, each of which have the same number of processors as the PVC's single FSMS. Actually, EDC's drg machines each have 2 more CPUs than the PVC.

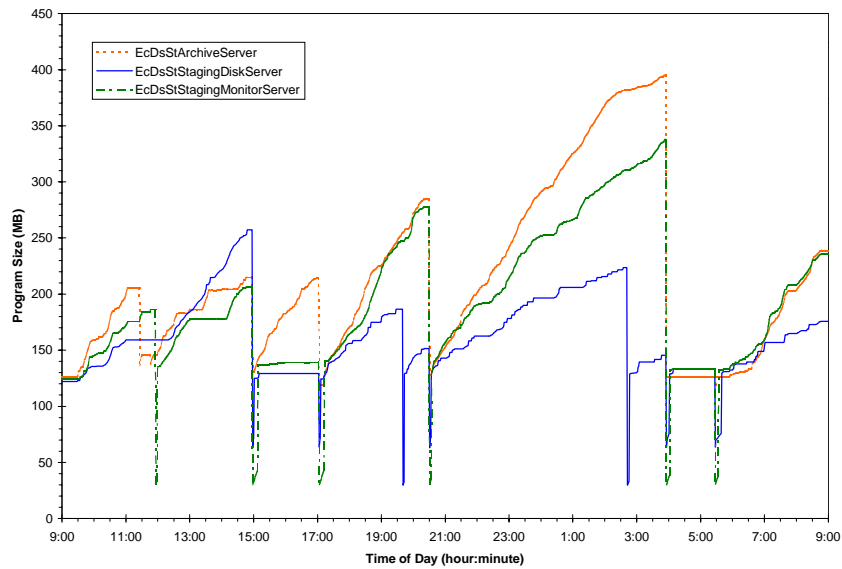
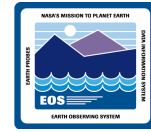
Splitting the load between two FSMS help control the drg bottleneck at the DAACs.

The WIO is split 60-40 between wait for the file system and wait for physical I/O. This tends to support the supposition that the disk system is overloaded.

As a caveat, at the time of the test, the p0drg01 had only 1/2 the number of disk controllers as does the corresponding drg platforms at the DAACs.

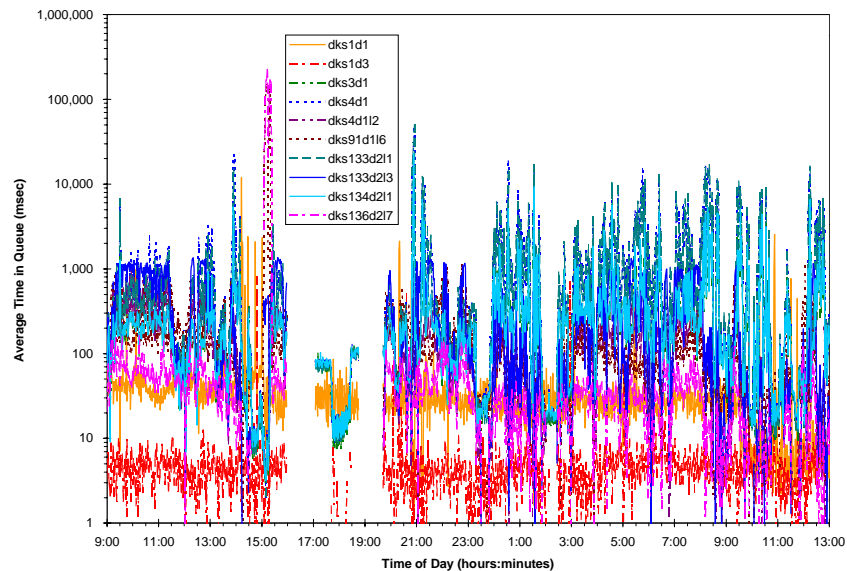
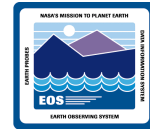
All this having been said, it seems that long-term monitoring of CPU and Disk Controller utilization at the DAACs might be a good idea.

Memory leaks in p0drg01 (EDC)



PVC 5B - 21

System Throughput Bottleneck - p0drg01 disk (GSFC scenario)



PVC 5B - 22

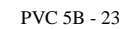
This is slightly less than 50% of the disks attached to p0drg01. The others show very little usage.

Notice that some of the disks are showing an average queue time of 1 second per request. These disks are averaging 50-70% busy. Typically one is concerned if the queue wait time is greater than 0.1 seconds.

Admittedly, EDC and GSFC split their archive load between 2 archives (and hence 2 drg machines and their disks). However, this graph indicates that the throughput on any drg machine is going to be limited by the current disk allocation and usage.

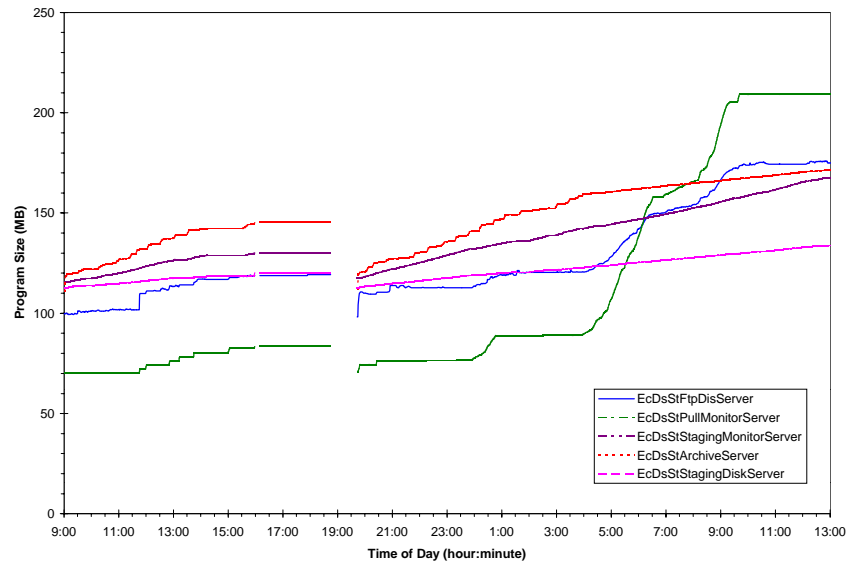
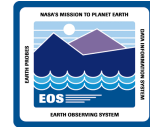
Not only is p0drg01 suffering throughput loss because of the disk load, but the disks themselves are being subject to the physical wear and tear to being busy >50% of the time.

The EOS logo is a blue square with a white border. Inside, there's a stylized landscape with a sun/moon, mountains, and waves. The text "NASA'S MISSION TO PLANET EARTH" is at the top, "EOS" is in the center, and "EARTH OBSERVING SYSTEM" is at the bottom. On the left side, "EARTH PROBES" is written vertically, and on the right side, "WILLOWS, HOLLINGSWORTH, AND WELLS" is written vertically.



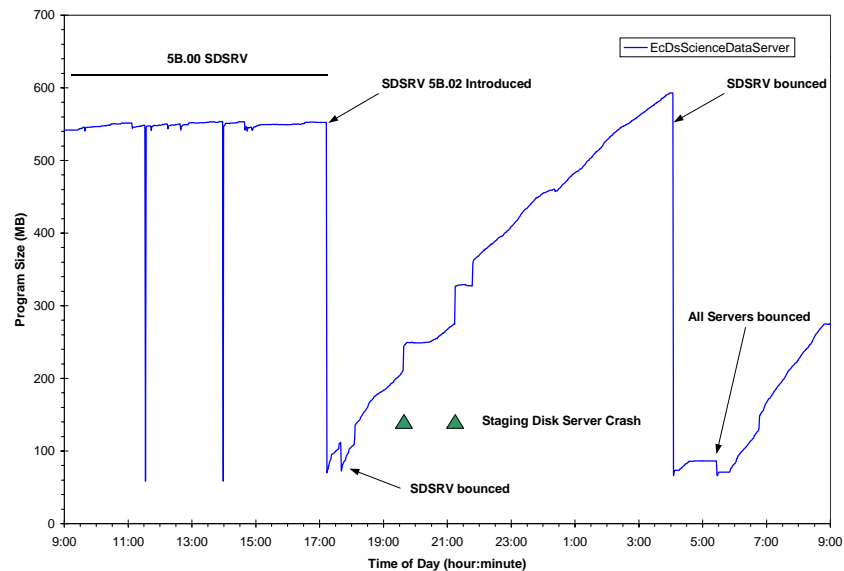
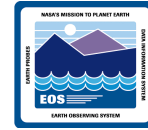
412-CD-510-002

Memory leaks in p0acg01 (GSFC)



PVC 5B - 24

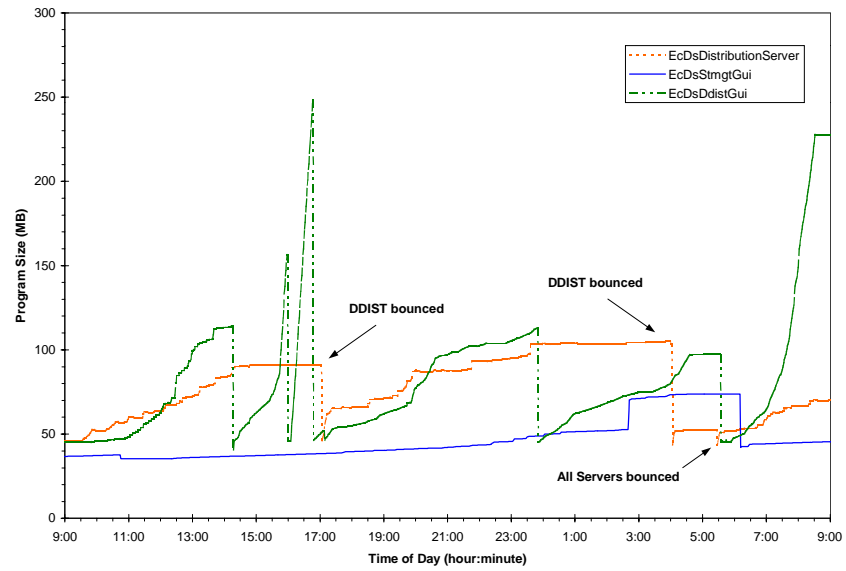
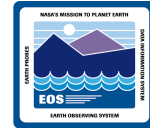
Memory leaks in p0acs03 (EDC)



PVC 5B - 25

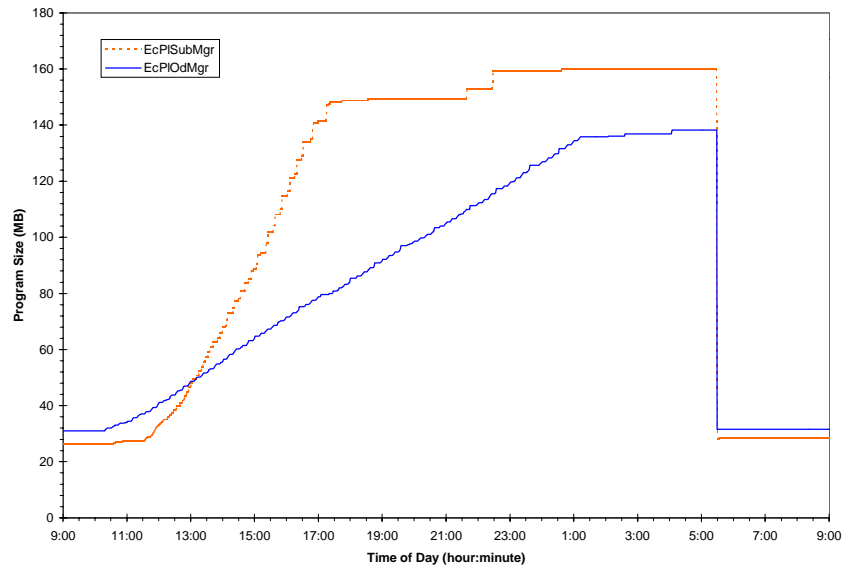
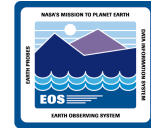
A new test executable was introduced during the test in order to help control the number of SDSRV crashes. This graph shows that being done.

Memory leaks in p0dis02 (EDC)



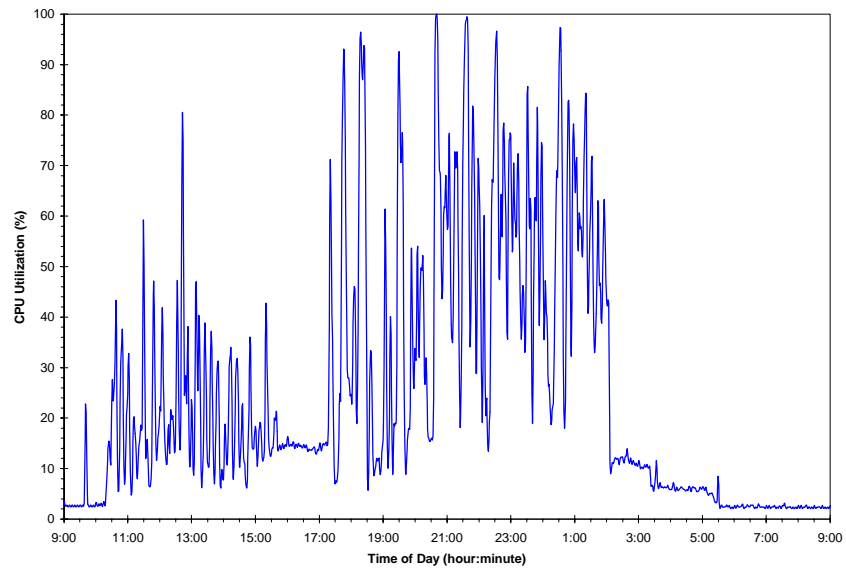
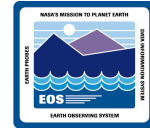
PVC 5B - 26

Memory leaks in p0pls02 (EDC)



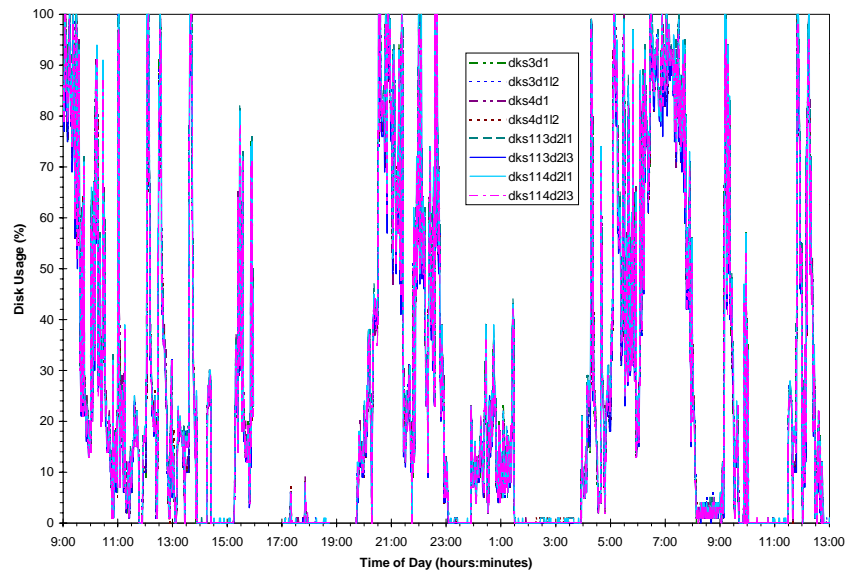
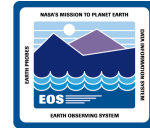
PVC 5B - 27

Usage of Queuing Server processor still high (EDC)



PVC 5B - 28

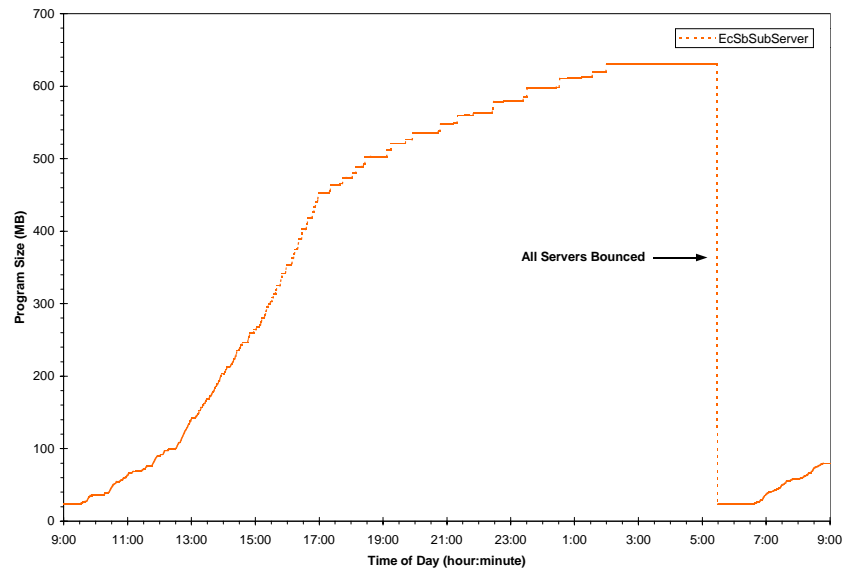
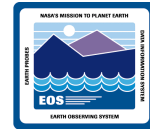
Disk usage may be problem on Science Processing (GSFC)



PVC 5B - 29

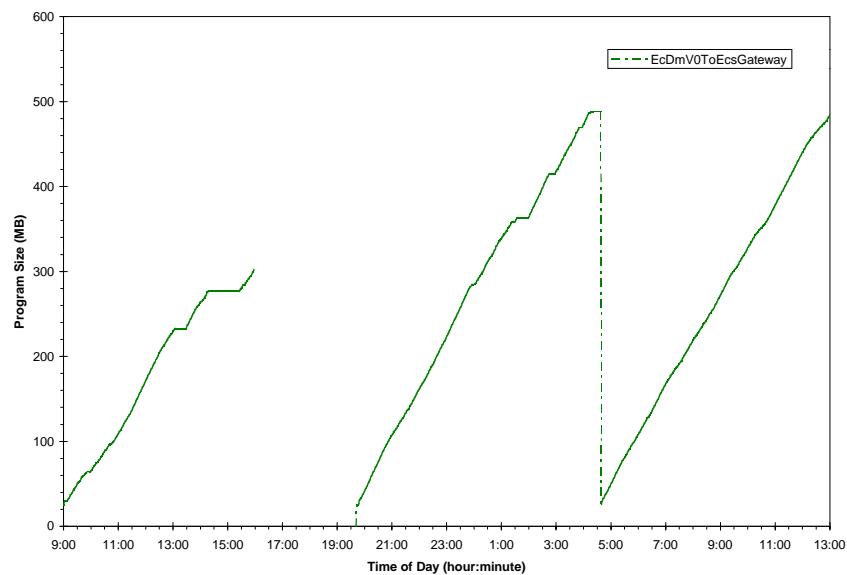
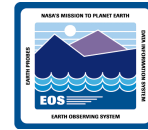
The reason why a firm conclusion cannot be reached based on the PVC runs is that synthetic PGEs were used. They do all their input at the beginning of execution and all their output at the end. This is almost certainly not the I/O profile of the PGEs. However, the data does raise the possibility that PDPS throughput will have a bottleneck at the Science Processors' disks.

Subscription Server growth (EDC scenario)



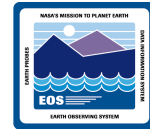
PVC 5B - 30

V0Gateway growth (GSFC)



PVC 5B - 31

Conclusions



ECS 5B will meet its performance requirements

- Provided known issues are satisfactorily resolved
- There are areas that can and should be tuned

8mm Tape Distribution continues to be a problem

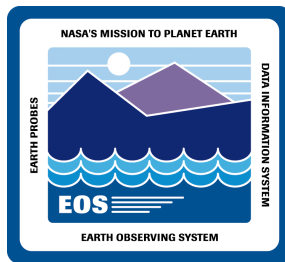
Memory Leaks continue to be significant

Disk usage within FSMS is an issue

ECS is not as stable under load as it should be

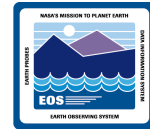
- Most systems have improved since 4PY (Ingest is the exception)

PVC 5B - 32



Backup Charts

Number of Processors



p0acg01	10	p0mss10	2
p0acs03	4	p0mss21	2
p0dis02	2	p0pls01	1
p0drg01	6	p0pls02	4
p0icg01	4	p0sps06	4
p0ins01	2	p0spg01	16
p0ins02	2		

PVC 5B - 34

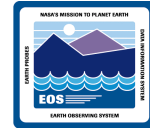
P0drg01: EDC has 2 machines with 8 processors each (for a total of 16 processors), GSFC has 2 machines with 6 processors each (for a total of 12 processors)..

P0icg01: EDC ingest has 4 processors, GSFC ingest has 2 processors.

P0sps06: EDC & GSFC queuing processors (sps box) has the same number processors, but they have twice the clock rate.

P0spg01: EDC has 2 machines with 10 processors each (for a total of 20 processors), GSFC has 2 machines, one with 16 processors, the other with 24 processors (for a total of 40 processors).

Who's What

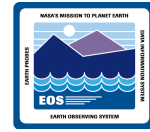


p0acg01	APC Server	p0mss10	MSS File Server
p0acs03	Science Data Server	p0mss21	APPS Server
p0dis02	Data Distribution	p0pls01	Planning W/S
p0drg01	FSMS Server	p0pls02	PDPS DBMS Server
p0icg01	Ingest Server	p0spg01	Science Processor
p0ins01	I/F Server	p0sps06	Queuing Server
p0ins02	DMS, IOS, CLS Server		

PVC 5B - 35

P0acg01 also handles the SDSRV and STMGT databases.

Number of Restarts (crash and/or bounce) during EDC Run



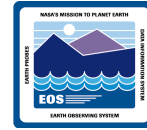
Archive Server		Staging Disk	
p0acg01	3	p0drg01	5
p0drg01	5	p0icg01	1
DDIST	2	Staging Monitor	5
FtpDis		FTP Daemons	
p0acg01	4	p0acg01	1
p0drg01	5	p0drg01	1
HDF Servers	2	JobMgmt (PDPS)	2
InGran	23	SDSRV	15
IngestFtp	1	V0toEcsGateway	1
InReqMgr	7	8mm Server	6

PVC 5B - 36

The analogous data for the GSFC run was not available at the time this presentation was put together.

A good number (10+) of the SDSRV restarts occurred before the SDSRV executable was replaced with the 5B.02 SDSRV executable.

For Comparison, the same data GSFC E-to-E (Feb 11-12, 1999)



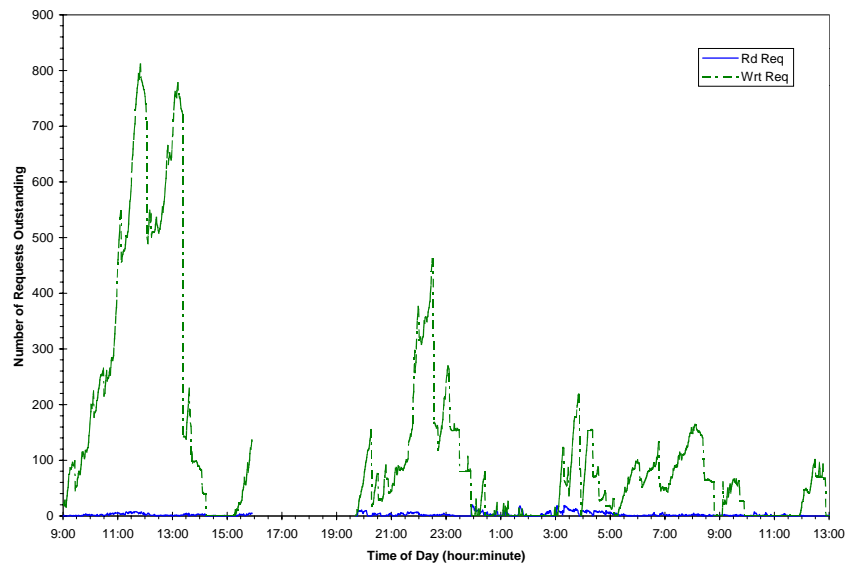
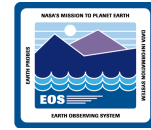
Archive	12	Pull Monitor	1
DDIST	6	Staging Disk	7
FtpDis	3	Staging Monitor	9
InGran	5	Subagent	2
IngestFtp	3	Subscription Server	1
InReqMgr	2	8mm Server	1

PVC 5B - 37

The number of restarts are approximate since determining the numbers involved going through operator logs and interpreting what they had written (sometimes it was obvious, other times it was late at night). It is also possible, because of the problem of interpretation, that some of these names refer to the same subsystem.

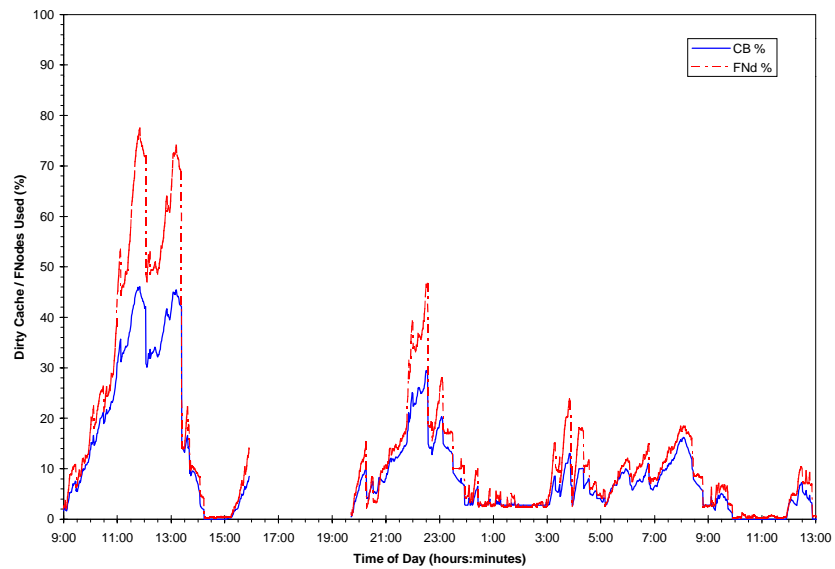
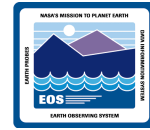
The underlying message is that, with this number of operator restarts, this system is not operationally stable. Even after the g0mss10 problem was fixed, there were a large number of restarts needed.

AMASS Outstanding Requests (GSFC Scenario)



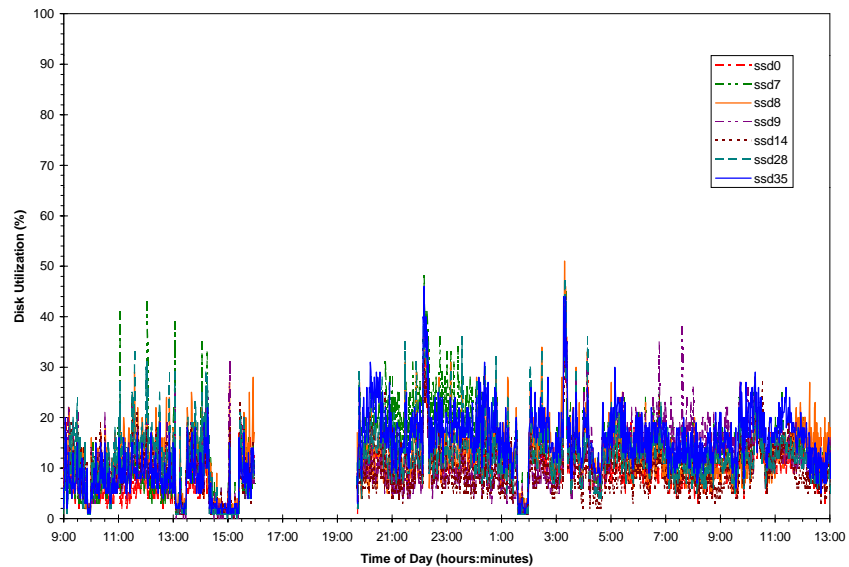
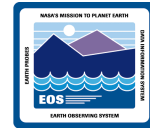
PVC 5B - 38

AMASS Dirty Cache & Fnode usage (GSFC Scenario)



PVC 5B - 39

MSS File Server active, but not excessively so (GSFC scenario)



PVC 5B - 40

There was essential no wait in the disk queue, which indicates that the disk and I/O subsystem was not overloaded.

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